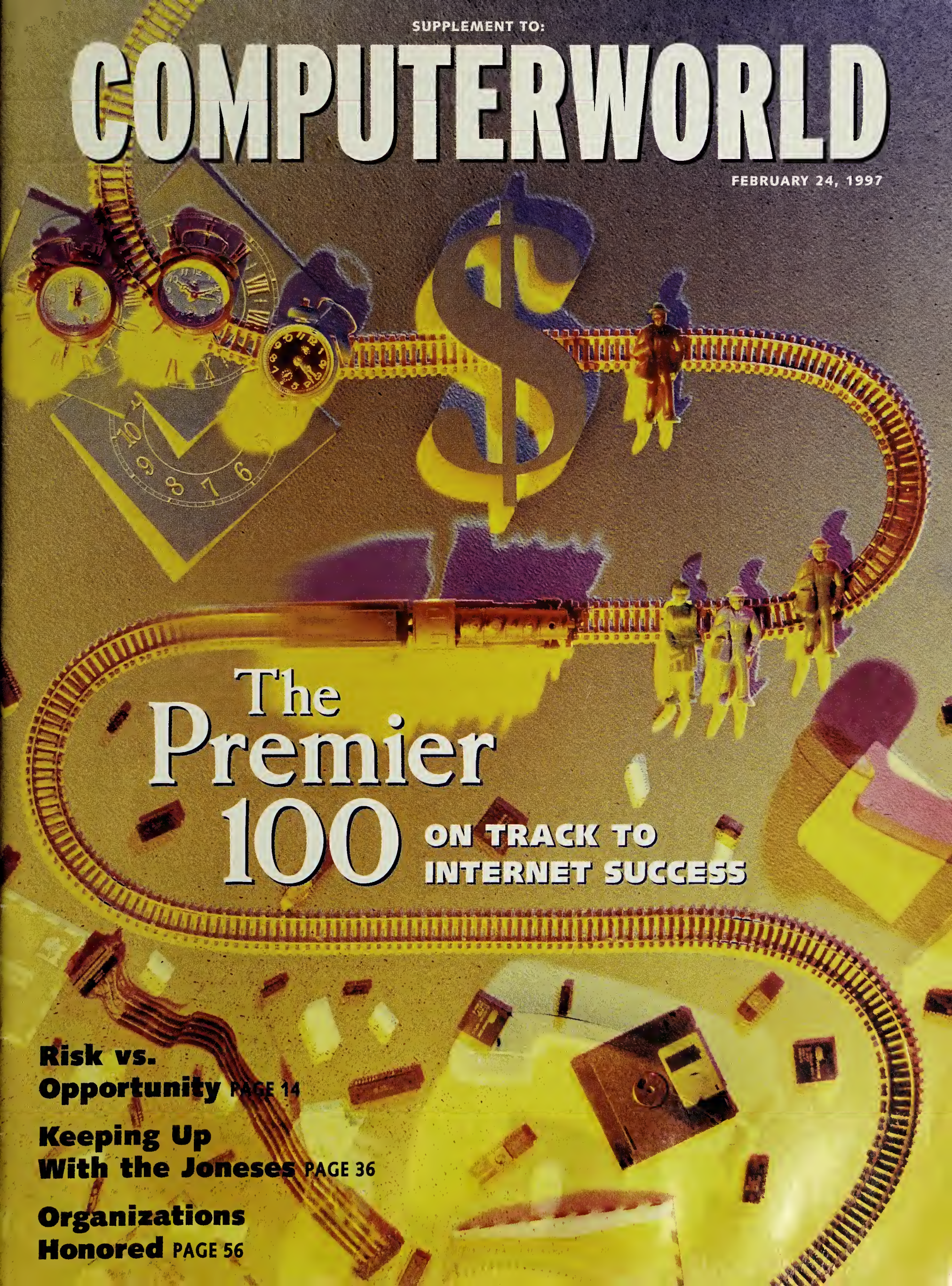


SUPPLEMENT TO:

COMPUTERWORLD

FEBRUARY 24, 1997



The Premier 100

**ON TRACK TO
INTERNET SUCCESS**

**Risk vs.
Opportunity** PAGE 14

**Keeping Up
With the Joneses** PAGE 36

**Organizations
Honored** PAGE 56

Sun Microsystems Computer Company

2550 Garcia Avenue, MS UMPK10-209

Mountain View, CA 94043-1100

415 960-1300

**Saluting Innovation on the Net****A Message from Edward J. Zander
President, Sun Microsystems Computer Company**

1997 ushers in another exciting year of opportunity as the Network Age moves forward at its fast pace. And nowhere is the push to new frontiers more in evidence than in those organizations applying Internet-related technology to conduct business in a whole new fashion.

In the following pages of this magazine, published by Computerworld, you'll find 100 of the best and brightest. Companies daily deploying the technology necessary to realize effective business gains through superior application development for their Web sites, for their intranets, and for their commercial traffic on the Internet. They represent true innovative spirit in their use of the technology now available. And they are a source of inspiration to those of us striving to develop and manufacture new products that will continue their push forward.

Sun is again proud to be a part of this salute to innovation by sponsoring the Premier 100 magazine. And we are pleased to have our partners—Informix, Netscape Communications, Oracle, SAP America and Sybase—join us as co-sponsors of the 1997 edition of this special magazine from Computerworld.

We congratulate the organizations Computerworld has placed on its 1997 Premier 100 list and offer best wishes for success in their future endeavors.

Contents



COVER STORY

14 Risk vs. Opportunity

As in the marketplace at large, only a small percentage of Premier 100 organizations are using their Web sites to conduct transactions. Here's why.

By Kathleen Gow

5 From the Editor

The Premier 100: Internet excellence, at a moment in time

8 Executive Summary: From A to Z

With Web technologies, applications run the gamut and benefits go beyond the bottom line. A look at our issue.

By Anne McCrory

9 The Premier 100

An alphabetical list.

24 Start small. Think infinite.

Four Premier 100 companies share their Web discoveries.

By Alice LaPlante



30 So you built it. ... Did they come?

Your site makes a splash. Then the traffic dies down. Is it time to refresh, retrench or reevaluate?

By Thomas Hoffman

36 Keeping up with the Joneses

As FedEx, UPS and DHL jockey for lead position in their market, updates and new services are the name of the game.

By Natalie Engler

36



27



19





48 Build or Buy?

There are outsourcers aplenty for Web development. Some Premier 100 organizations have used them; others haven't.

By Mark Halper

51 Beyond HTML

What's hot, what's not in Premier 100 development.

By Suruchi Mohan

54 Web Wunderkind

How to keep your webmaster happy.

By Leslie Goff

56 The Premier 100 Tables

A listing of the organizations and their applications.



64 Premier Paradox

Not everyone will be enjoying the Web any time soon. A writer and an academic debate what's happening outside corporate America.

By Wade Rowland and Mitchell Moss

68 Editorial Index

EXPECT THE UNEXPECTED

Eight organizations you might not have expected to see leveraging the Web:

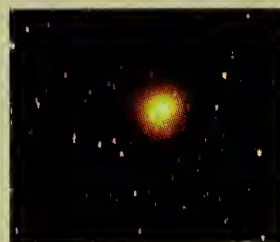
- 40 Mission Municipal**
Cambridge, Mass., and Seattle: virtual city halls.
By Steve Alexander



- 41 A Healthy Hit**
Recovering addicts find inspiration on Hazelden site.
By Wendy Marx

- 44 Wanted: Retirees**
Developer goes in search of wired seniors.
By Wendy Marx

- 45 The Price Is Right**
Goodwill Industries finds the Web a thrifty medium.
By William Spain

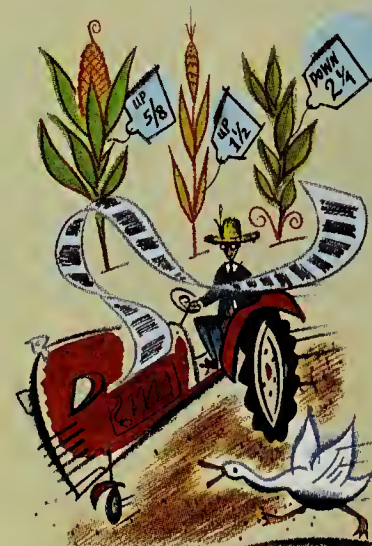


- It's All in the Stars**
Space meets cyberspace on this NASA site.
By Steve Alexander

- 46 Vessel for Evangelism**
The Lutheran Church reaches out over ethereal lines.
By Candee Wilde

- Fine Arts**
A site for artists and aficionados alike.
By William Spain

- 47 A New Crop**
Consolidated Grain offers farmers a site fertile for growing their business.
By Candee Wilde





Back



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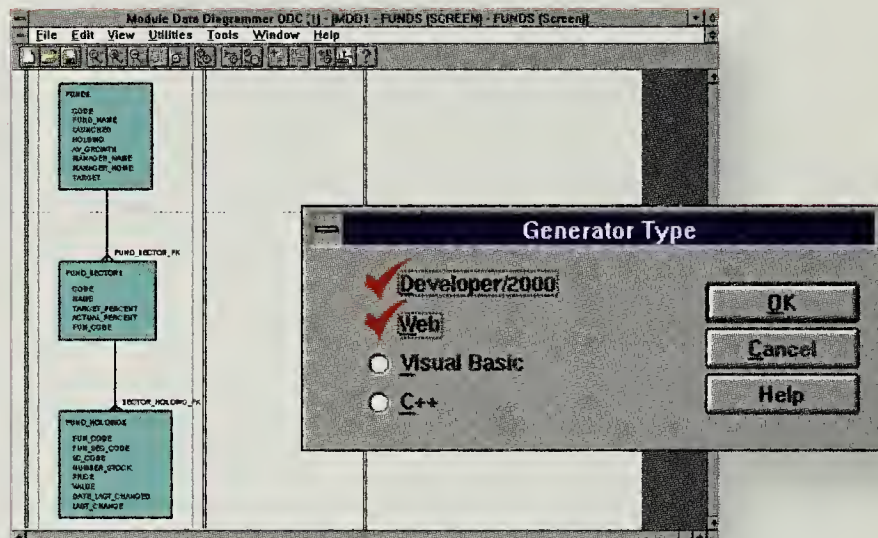


NETSCAPE

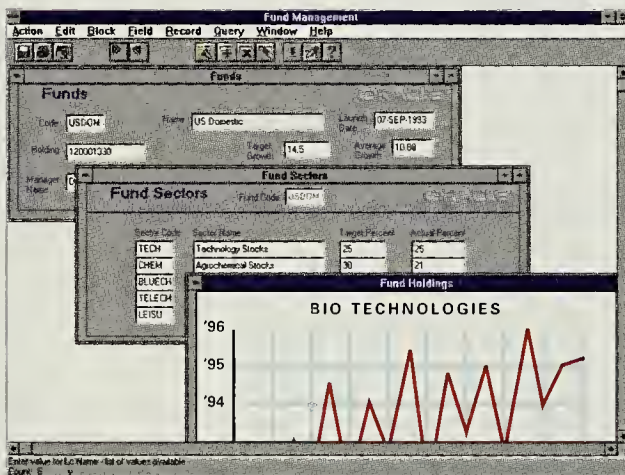


Generate Web and Client/Server Applications

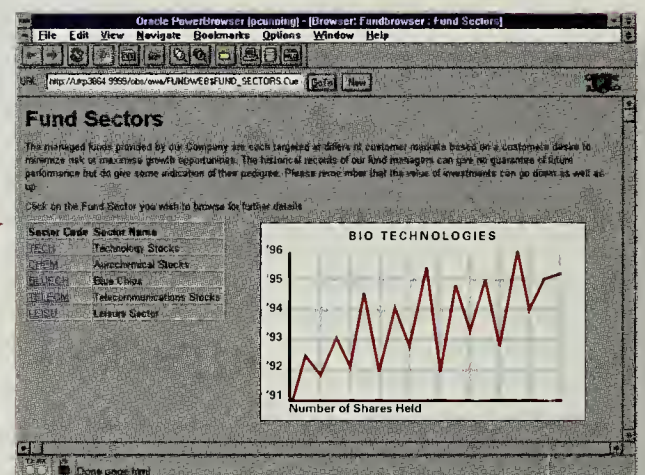
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COVER PHOTOGRAPHY David Gaz

From the editor

The Premier 100: Internet excellence, at a moment in time

Behold! It's the 1997 edition of *Computerworld's* Premier 100, a publication bold enough to thoroughly dissect the issues confronted and overcome by organizations that are excelling with Internet technologies on both sides of the firewall.

What makes Premier 100 organizations so damn good? They're leveraging the World Wide Web and related technologies in ways that significantly advance their core organizational objectives. That means they're creating lower-cost or more efficient channels of product distribution and service, or they're more effectively sharing critical operational data with suppliers and customers — or with their own far-flung staff. Or, they're creating business opportunity where none existed BTW (before the Web). They've also figured out how to overcome bandwidth and network infrastructure shortcomings and avoid security loopholes and cultural chasms at almost every turn.

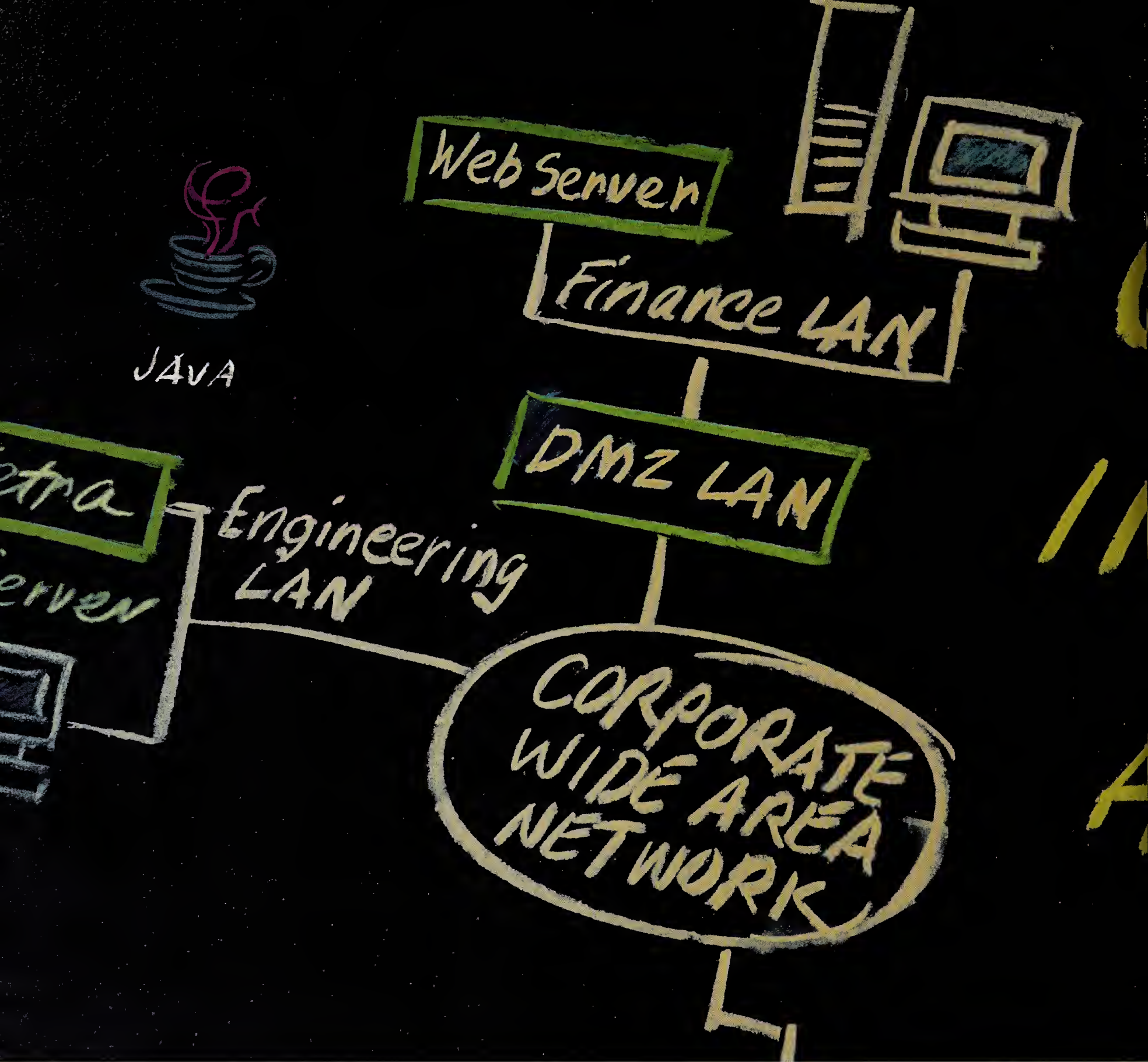


We know our list is far from exhaustive. We concede it's purely a snapshot that captures Internet excellence at one point in time (last fall). It does, however, reflect the best practices of organizations that have mastered the first leg of the Internet challenge, a contest not too unlike a marathon. But this race is of indeterminate length and is filled with numerous physical and metaphysical "walls" that must be scaled along the way.

Interestingly, those who lead the initial stages may not be the ones who persevere. With Java and Active X applets, better encryption techniques, certification authorities, EDI and other transaction standards and "push" technologies on the horizon, today's laggards could become next year's contenders (learning curve, 'net bandwidth and processing capacity permitting). Should be interesting to see who leads next year's pack.

A handwritten signature of Alan Alper in dark ink. The signature is stylized, with the first name 'Alan' being more prominent and the last name 'Alper' following in a cursive-like script.

Internet: alan_alper@cw.com



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EXECUTIVE SUMMARY:

From A to Z

This year's Premier 100 goes beyond the bottom line. A look at our issue.

By Anne McCrory

This year, for the first time, we're not ranking the Premier 100. What? No one gets to tout being No. 1? Or lament being "only" No. 79? Sorry, guys. That's what happens when you change things from the way you've always done them — numerically rating the top 100 users of IT — and go for an all-new look and feel. And you can't talk IT in 1997 and not talk about the Internet, whether it's the global network of networks or the use of its technologies behind the firewall. Ranking is just one of the old rules that don't apply. (We've alphabetized our list instead.)



The Premier 100

Why? You can't create a ranking system without hard dollar figures, and where Web technologies are concerned, neither revenues nor development costs are clear indicators of an application's business value. Nor can you measure real return on investment, particularly when applications are less than a year old — as most of the Premier 100 apps are. Revenue generation estimates are likely pie-in-the-sky projections for applications that haven't yet earned a dime — or if they have, that can change in a New York minute on the Web (see "So you built it. ... Did they come?" page 30).

Where development is concerned, costs are often hidden in other budgets. End users sometimes design sites themselves. What cost one organization \$1,000 — a basic intranet or Web page with simple HTML links — could have more business value than a complicated electronic data interchange (EDI) over-the-Internet order-entry system that's still being used by only a fraction of suppliers and retailers. With costs, value and applications so variable, comparing one project to another becomes impossible.

ON THE OTHER HAND

But that's not bad news. When you don't hold companies' use of emerging technology to a numerical standard, you open the way for looking at what they're really doing. And there are some fascinating applications. Some you've no doubt heard about — for instance, Amazon.com, the online bookstore that *is* the company (no warehouse, no cappuccino bar, no stores). Others may be less well known, such as the service that beams your home photos over the Web to distant relatives, who can order 5x7's from a local participating photo developer that will print them out. But these applications involve no less sophisticated technology and business acumen.

On the intranet side, communi-

A & M Records amrecords.com
 Advanced Marine Enterprises, Inc. www.advmar.com
 Alamo Rent A Car, Inc. www.freeways.com
 Alaska Airlines, Inc. www.alaska-air.com
 Allegany County (Md.) HR Development Commission NA
 Aluminum Company of America www.alcoa.com
 Amazon.com www.amazon.com
 AMP, Inc. connect.amp.com
 APL Ltd. www.apl.com
 Armstrong World Industries www.armstrong.com
 Arthur D. Little, Inc. www.arthurdlittle.com
 Ashland, Inc. www.ashland.com
 Auer Precision Co. NA
 BankAmerica Corp. www.bankamerica.com
 Barnett Banks, Inc. www.barnett.com
 Battelle Pacific Northwest National Laboratory www.pnl.gov
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 Dreyfus Corp., The www.dreyfus.com
 Encyclopaedia Britannica, Inc. www.eb.com
 Environmental Protection Agency www.epa.gov
 Equitable Cos., The www.equitable.com
 Federal Express Corp. www.fedex.com
 First Union Corp. www.firstunion.com
 Florida Power & Light Co. www.fpl.com
 Gas Research Institute www.gri.org
 Geisinger Health System www.geisinger.edu
 GenCorp rw.gencorp.com
 Gould Paper Corp. www.gouldpaper.com
 Harris Corp. www.harris.com
 Hastings Entertainment, Inc. www.hastings-ent.com
 Hazelden Foundation www.hazelden.org
 HBO & Co. www.hbo.com
 Heritage Environmental Services, Inc. www.heritage-enviro.com
 Holiday Inns, Inc. www.holiday-inn.com
 Indianapolis VA Medical Center www.va.gov/station/583.htm
 IntelliChoice, Inc. www.intellichoice.com

Continued on next page

cation and distribution are the big winners, in applications that empower all levels of workers, affecting more than the visible bottom line. KeyCorp, for instance, has renamed its executive information system "everyone's information system," now that it's an intranet that 1,000 employees can use to access 40 types of content.

In any case, Internet success is certainly not cut-and-dried. One big surprise? That so few of the best and the brightest are conducting transactions over the Web — just 10% of our list reports using Web technology to perform sales transactions with Internet technology. It's that darn security stuff, isn't it, you're thinking. Well, that's part of it. We called our story "Risk vs. Opportunity." It starts on page 14.

At least you now know you're not "behind" if you don't have online transactions. If you've done anything at all, you're on the right track, because most Premier 100 organizations started small; they Web-enabled some noncritical app, and then the lightbulbs started going off (see "Start small, think infinite," page 24).

OUT OF SITE

Of course, the innovation process might be different if you outsource your whole Web project (see page 48), but outsourcing is a viable option if you don't have the expertise you need on staff. It's another area where the old rules don't apply, too. Premier 100 organizations are outsourcing pieces of the job, then bringing them back in-house and sending them out again — not like the old days, when your name in ink on the dotted line meant one vendor provided you specific services for a set duration of time.

If you do choose to build your site, application or intranet yourself, you'll want to check out the tools the Premier 100 are using and note these organizations' tips for choos-

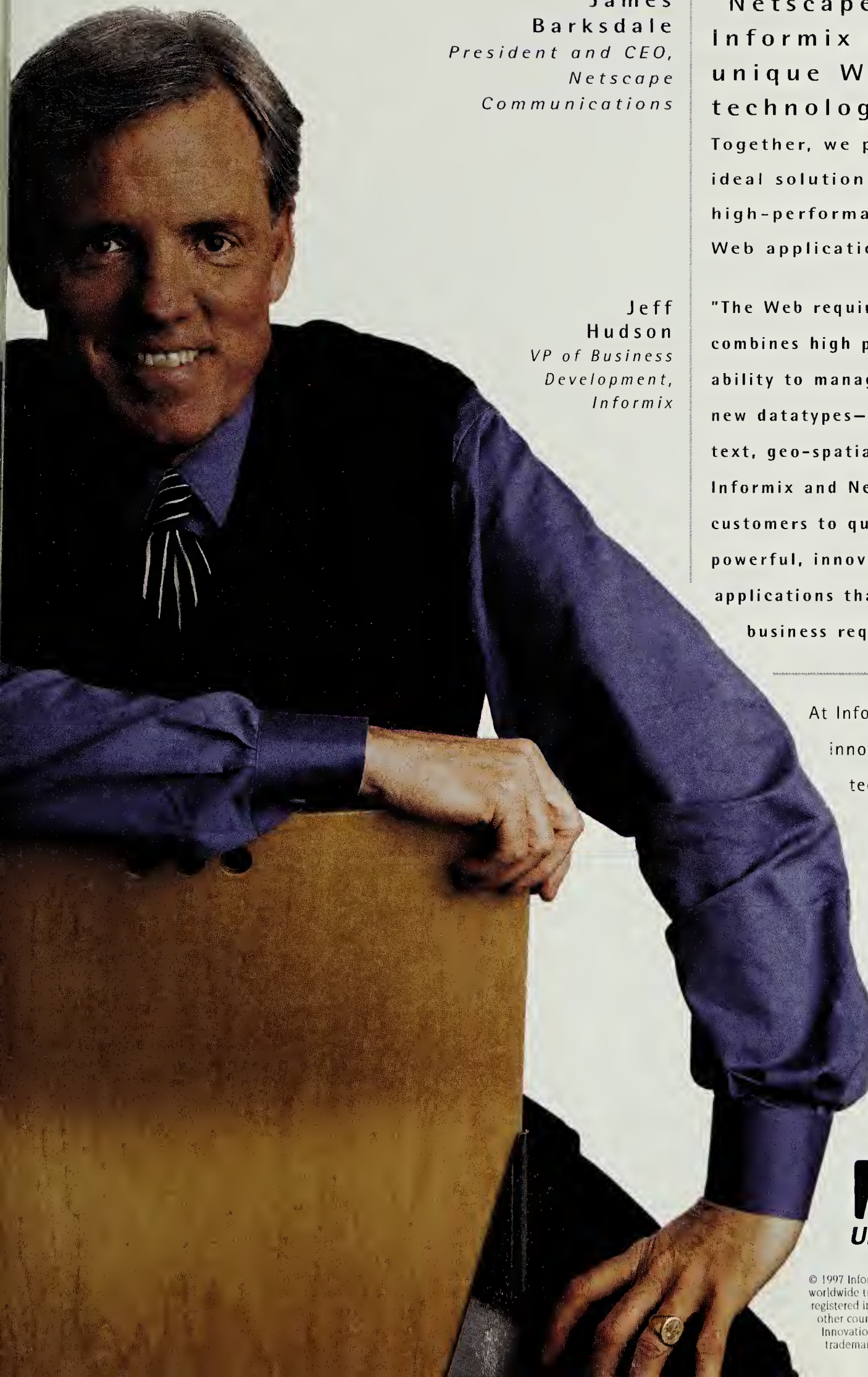
Continued on page 12

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J. B. Hunt Transport Services www.jbhunt.com
 Johnson & Higgins www.jh.com
 KeyCorp www.keybank.com
 KPMG www.kpmg.com
 Kraft Foods, Inc. www.kraftfoods.com
 Lands' End, Inc. www.landsend.com
 Levi Strauss & Co. www.levi.com
 Lutheran Church – Missouri Synod www.lcms.org
 Marriott International, Inc. www.marriott.com
 McDonald's Corp. www.mcdonalds.com
 Metropolitan Tickets, Inc. (MetroTix) www.mtix.com
 Mobil Corp. www.mobil.com
 MovieFone, Inc. www.movielink.com
 National Personnel Associates Cooperative, Inc. www.npainc.com
 New York Foundation for the Arts www.artswire.org
 North American Company for Life & Health Insurance NA
 Ourisman Chevrolet and Geo, Inc. www.ourisman.com
 Pacific Enterprises/Southern California Gas www.pacent.com
 Parker Hannifin Corp., Compumotor Division www.compumotor.com
 Peapod www.peapod.com
 Pennsylvania State University at DuBois www.ds.psu.edu
 Pep Boys – Manny, Moe & Jack www.pepboys.com
 PictureVision, Inc. www.photonet.com
 Plymouth, Inc. www.plymouth-fun.com
 Progressive Corp., The www.auto-insurance.com
 Purdue University www.purdue.edu
 R. M. Vredenburg & Co. www.vredenburg.com
 Rich Products Corp. www.richs.com
 Rockwell International Corp. www.rockwell.com
 Rotex, Inc. NA
 Sabre Interactive www.travelocity.com
 Samsung Construction Equipment America Corp. www.scea.com
 Saturn Corp. www.saturncars.com
 Schnuck Markets, Inc. www.schnucks.com
 Seattle, City of www.ci.seattle.wa.us
 Sharper Image Corp. www.sharperimage.com
 Spiegel, Inc. spiegel.com/spiegel
 Superior Electronics Group, Inc. www.cheetahnet.com
 TRW, Inc. www.trw.com
 United Airlines, Inc. www.ual.com
 United Healthcare Corp. NA
 United Parcel Service of America, Inc. www.ups.com
 U.S. Postal Service www.usps.gov
 University of California www.ucla.edu
 University of Texas Medical Branch at Galveston www.utmb.edu
 University of Texas – Houston Health Science Center www.uth.tmc.edu
 Vanderbilt University www.vanderbilt.edu
 Wells Fargo & Co. wellsfargo.com
 Weyerhaeuser Co. www.weyerhaeuser.com
 Whirlpool Corp. www.whirlpool.com

NA=Not available. Some Premier 100 organizations do not have public Web sites and are honored for their Internet/intranet applications.

Netscape's James Barksdale on Informix.



James
Barksdale
*President and CEO,
Netscape
Communications*

Jeff
Hudson
*VP of Business
Development,
Informix*

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Continued from page 10
ing an Internet service
provider ("Beyond
HTML," page 51).

Then again, getting
your application started
is only the beginning. If
you have a commercial
site, you need to learn
how and where to pro-
mote it so the visitors come — and
come back. In that regard, updating
your material and enhancing what you
offer on the Web is key, the Premier

Top industries

*The 1997 Premier 100
comprises these industries*

Manufacturing	15%
Business services	11%
Retail	8%
Financial services	7%
Education.....	6%
Transportation.....	6%
Entertainment	5%
Government	5%
Health care	5%
Insurance	4%
Utilities.....	3%
Other	25%

Source: Premier 100

100 found. And if you're in a competi-
tive field (and these days, who isn't?)
it's a veritable steeplechase to offer new
services before your rival — our

\$55K

**Median cost to
develop a
Premier 100
application/site.**

Base: 53 respondents. Source: Premier 100

friends in the package
carrier industry speak to
that ("Keeping up with
the Joneses," page 36).

And speaking of
competition, has any-
body recruited your
webmaster yet? We
asked managers at four
Premier 100 companies
how they keep their artists cum tech-
nician/administrators happy and on
the network ("Web wunderkind," page

54). They say project
ownership, job satisfac-
tion and flexible working
conditions are key.
"We're trying to bring
developers into a strong
partnership with the
business, where they
actually feel that they
own the site," says
Gideon Sasson, a senior
vice president at Charles Schwab.

But for everyone who makes a liv-
ing on the Web, there's somebody else
who has never fired up a browser and
isn't likely to — like the 15 million
people in the U.S. who don't even have
phone service ("Premier paradox," page
64). Some programs are in place to
provide greater access, but they are far
from enough. "The fact that the tech-
nology is evolving should not deter us
from insisting on universal access," says
consultant and author Wade Rowland,
one of our correspondents.

Still, the world is surprisingly wired
these days, with churches, seniors,
farmers, artists and agencies serving
usually less-enfranchised demograph-
ics getting into the act. Even though
some of the applications that serve
these populations didn't make our 100
list, we included them in "Expect the
Unexpected," page 40, as testament to
the fact that the site you stumble
across may be more interesting than
the one you set out to find.

Regardless of your own business

niche — be it corporate
America, small business,
nonprofit or entrepre-
neur — our Premier 100
has something for you.
The most worthy Web
apps, after all, aren't as
dependent on funding as
on innovation; on huge
staffs as on dynamic
ones; on sophistication

as on the ability to identify a business
need and leverage this emerging medi-
um to fill it. Like any new business
venture, Internet projects must be con-
stantly re-evaluated — and you must
be capable of tweaking, updating and
even totally revamping them on short
notice. Like the Internet itself, which
knows no limits, so too do its applica-
tions, inside and outside the firewall,
demand attention ad infinitum.

▷ MCCRORY IS MANAGING EDITOR OF THE
PREMIER 100.

\$50K

**Median annual
cost to operate
a Premier 100
application/site.**

Base: 46 respondents. Source: Premier 100

How we chose the 100

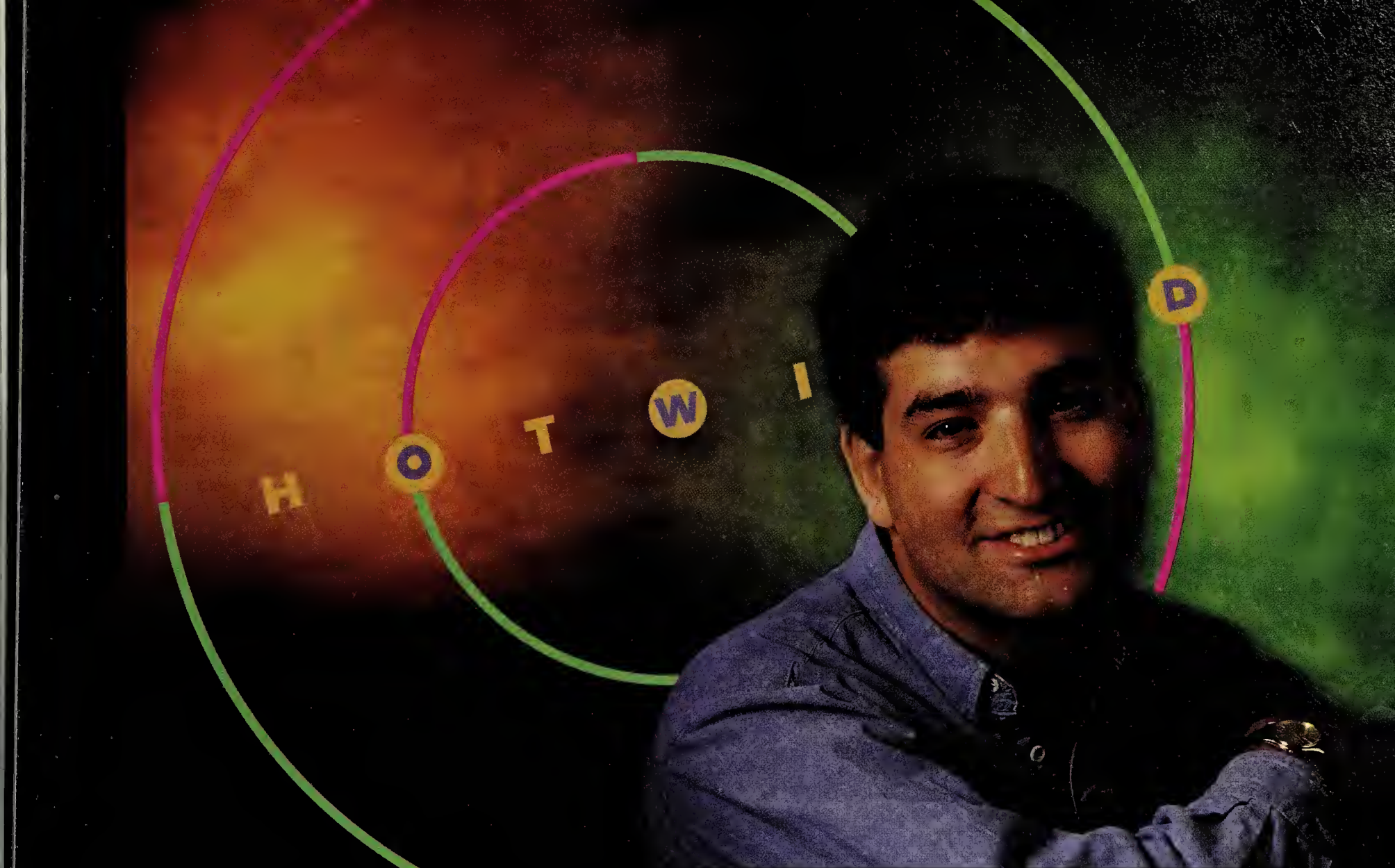
Selection of this year's Premier 100 began with a survey of
10,000 organizations in more than a dozen industries
(excluding computer hardware and software and telecommu-
nications) last fall. Organizations were asked about their
Internet and intranet applications — what they were, how
much they cost to deploy, how much they cost to maintain,
what revenue, if any, the organization expects from the appli-
cation and what other benefits it has earned, or expects to
earn, from the technology.

Computerworld editors then verified the information and
evaluated the organizations' projects based on innovation,
complexity of application and organizational value. To qualify,

the Web sites or other Internet/intranet applications had to
have been in general use for at least three months at the time
of the survey.

Because the applications and sites are so disparate among
industries and even among organizations, and because the
technology is so new at many organizations that cost benefits
were often only projections at the time of the survey, we chose
not to rank the 100 this year. Instead, we offer you a listing of
100 organizations that represent the innovation and evolution
of Web technology in the U.S. marketplace.

For more information on the organizations and their appli-
cations, see the tables beginning on page 56.



Andrew Anker,
CEO, HotWired, Inc.

There are cool places on the Internet. And then there are truly hot ones—like the HotWired™ Network (www.hotwired.com), serving over two

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Internet Solutions

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www.sybase.com



RISK vs. OPPOR

By Kathleen Gow

"The most compelling reason to get on to our service is for groceries, but there are a lot of other things we can sell because the customer has a relationship with us." — Thomas Parkinson, Peapod

Susan Andreen buys two to three dozen cans of cat food, all different brands and flavors, for her three finicky cats each time she gets her groceries. Not that she has to go to a store — she places her order from her computer with a third-party fulfillment company called Peapod, which takes the order electronically, has it filled at the nearby Jewel Food Store in Chicago and delivers the goods to Andreen's door.

It's a service that benefits the consumer. But what if a cat food maker wanted to know at what price Andreen could be persuaded to change to a single brand of cat food? Or if she would, in fact, be willing to fill out an online survey about her buying preferences in exchange for \$5 off her next order?

Peapod can do that, too. Offering such "1-to-1 marketing" was one reason the 7-year-old Evanston, Ill.-based online grocery shopping pioneer added the Internet as an access point (www.peapod.com) to its proprietary dial-up network service last June.

Clients — called sponsors — include companies such as Ralston Purina Co., Kraft Foods, Inc. and Bristol-Myers Squibb Co. They complement a half-dozen grocery store partners, including Jewel Food Stores, and 30,000 consumers from five metropolitan

areas in Peapod's growing customer base. The service is expected to reach 100,000 consumers in 12 cities by the end of this year. To order groceries through Peapod, consumers pay a monthly membership fee via credit card, a flat shopping and delivery fee and 5% of the total grocery bill when the goods arrive.

"They're flocking to us," boasts Thomas Parkinson, Peapod's executive vice president and chief technology officer. Parkinson co-founded Peapod with his brother Andrew, knowing, he says, that information on customers' buying habits, as well as the ability to test things such as coupons, would be valuable assets to consumer goods companies. That's why, from the beginning, they started capturing consumer buying patterns in their data warehouse.

AMONG THE FEW

But Peapod, with its array of transaction-oriented Web applications, is a standout among Premier 100 organizations. Our survey results show that the bulk of Web applications, at the end of 1996, involved information sharing, document publishing, electronic mail and customer service; just 10% involved sales transactions. These results are close to 1996 figures from International Data Corp. (IDC) in Framingham, Mass., that estimate that 80% of Fortune 500 companies at year's end had a Web presence (up from 34% in 1995), but only 5% were conducting transactions on the Web.

That's not to say many of these companies eventu-

The technology's there, but few Web sites conduct transactions.

Are companies' concerns prudent — or keeping them behind the curve?

"We've learned a tremendous amount about what attracts [customers] and what doesn't."

— Robert Newton,
Bank of America

TUNITY

ally won't do more. Many Fortune 500 companies now have transaction-oriented Web initiatives in pilot phase, says Ullas Naik, vice president of technology research at First Albany Corp., a Boston-based investment firm. "But it will be at least a year-and-a-half to two years before most are offering large-scale transactions," he says.

In Web years, that's a long way off. What gives? Premier 100 organizations list a host of concerns: data security and reliability. Scalability. Lack of infrastructure, common standards and audit trails. The limitations of development tools. A general unfamiliarity with the territory. And an assessment, based on industry, competitors and tolerance for adopting leading-edge technologies, as to whether they need to offer Web-based transactions to stay competitive.

"The Gateway 2000s, the Dells, the Netscapes are on the Web doing transactions because their audience is already there," says Frank Gens, senior vice president of research at IDC. "Companies like Wal-Mart are pioneering the development of a broader mass market, but it will take time for that audience to come."

Getting in front of the bandwagon won't necessarily bring extra payoffs, says Victor Wheatman, vice president of electronic commerce at the Gartner Group, Inc. in San Jose, Calif. "Companies have to look at themselves and determine what level of risk and investment they want to take and try not to get caught up in the hoopla and hype."

Banks, in particular, are feeling pressured to add Web transactions for competitive, marketing

and image reasons. "They don't want to appear stodgy, and they don't want to see cyberbanks coming into their business with less regulatory oversight and overhead," Wheatman says.

But, certainly, companies that don't now have transaction-oriented Web sites should not feel they are behind the curve, Wheatman adds. Analysts agree that we are still in the "early adopter" stage of putting transactions up on the Internet, and that it will take a long time for companies in most industries to migrate their applications, many of which are mission critical.

In fact, while consumer sales took the lead in 1996, by the year 2000, business-to-business sales over the Web will outpace consumer sales about 3-to-1, for a total of \$120 billion, according to market research firm Input, based in Mountain View, Calif.

Continued on page 18

80%
of Fortune 500
companies are
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have a presence
on the Web;
5% are conduct-
ing transactions
over their Web
sites.

Source: IDC, 1996



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content for every user, lets them make intelligent queries and get real time responses. One that lets you broadcast content directly to subscribers. All done quickly, easily, and economically.

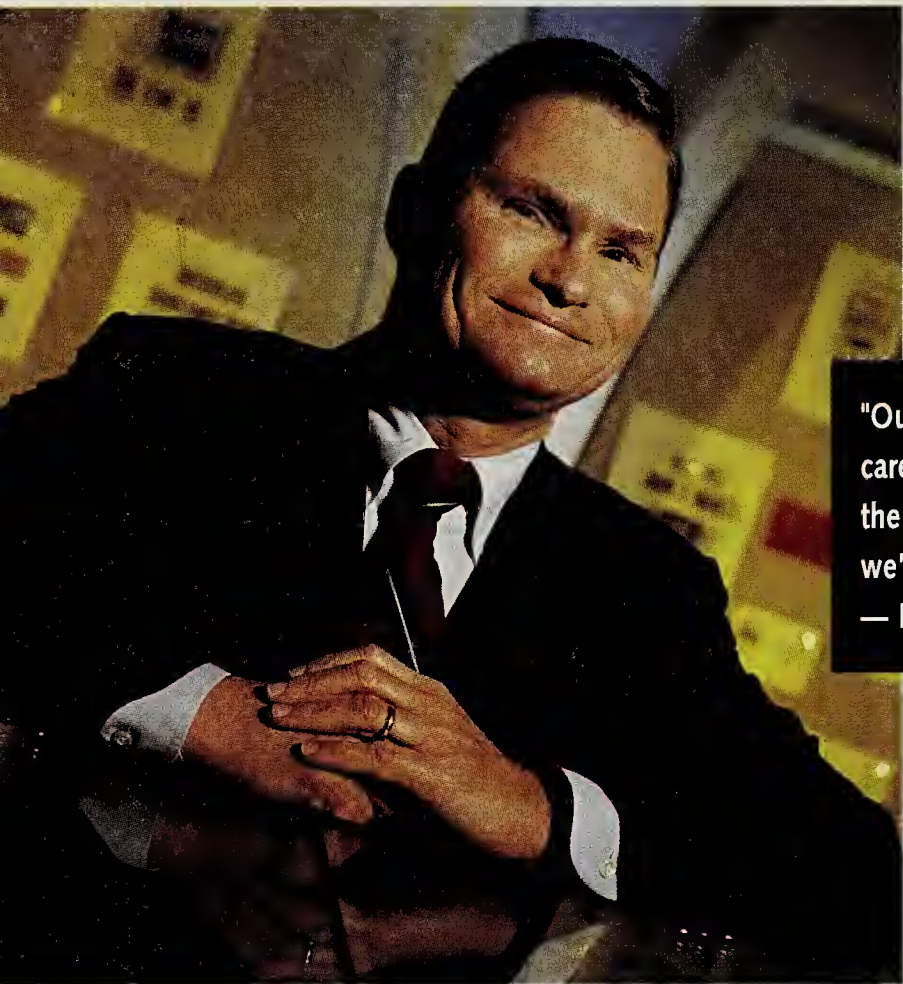
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inside the firewall or to customers' credit data if it doesn't implement security correctly. It risks marring or muddying its corporate image if the content, presentation or

able over the Internet last summer. One of its primary security moves was to partner with Netscape Communications Corp. to implement its Commerce Server with the Secure Sockets Layer security protocol. "At that time, it was really the only viable

"Our mission is to proceed in as deliberate and as careful a manner as possible so we don't jeopardize the security of credit card numbers, the information we're taking or our own network in the process."

— Pete Stark, U.S. Postal Service

solution to do online banking [on the Internet]," says Robert Newton, vice president of interactive banking product development. Today, he adds, there are more options.

operation is not up to company or industry standards. And, of course, it risks spending a lot of money for little or no payback.

The U.S. Postal Service just went live with its first transactional Web application in December. That service, which lets business customers order Express Mail supplies, doesn't require payment (the supplies are free), so the agency is still mulling security methods. But it will need to make a decision as it proceeds with plans to sell stamps from the Web site, among other services.

"Our mission is to proceed in as deliberate and as careful a manner as possible so we don't jeopardize the security of credit card numbers, the

Continued from page 15

Payment and security concerns have been a major barrier to that business-to-business growth — though those factors have hardly been missing on the consumer side. Whenever transactions are permitted, a company risks break-ins to corporate data stores

Some Premier 100 organizations are forging ahead nonetheless, with security a top concern. Such was the case at San Francisco-based Bank of America, a unit of Premier 100 honoree Bank-America Corp. It moved to make its complete line of online banking services — including bill paying — avail-

A Calculated Plunge

Does adding transactions to your Web site make sense?

With so much hoopla surrounding business sales opportunities on the World Wide Web and the fear of missing them, how do you decide if it makes sense to plunge into the murky waters of Internet electronic commerce?

You must be able to make a strong business case for adding a transaction-oriented application, the same as you would for adding any business application. "What benefit will you get from the transaction itself? Will it save money? Will it help you *make* money?" — these are the questions to ask, says Victor Wheatman, vice president of electronic commerce at Gartner Group. "If you can answer those questions clearly in the affirmative, then you've probably got something of value.

But if not, then it falls into the realm of advanced technology."

You must be able to define your audience and, based on how homogeneous it is, the scope of applications you need to offer, says Pete Stark, manager of corporate information services at the U.S. Postal Service in Washington, D.C. The Web site, for example, must respond not only to consumers, but also to a variety of business customers.

Once your audience is defined, get their feedback. "Ask your customers first if they're interested in doing it, and don't just do it because it's there," says Thomas Parkinson, executive vice president and chief technology officer at Peapod, an online grocery shopping and delivery service based in Evanston, Ill. Make sure what

you plan to offer provides true value, Parkinson says, giving customers something they can't get elsewhere or making it easier or faster for them to get it.

A company such as retailer L.L. Bean, Parkinson suggests, may do better sticking to its paper catalog because of the graphically intensive nature of its presentation. (L.L. Bean, nonetheless, enables customers to buy products through its Web site at www.llbean.com.)

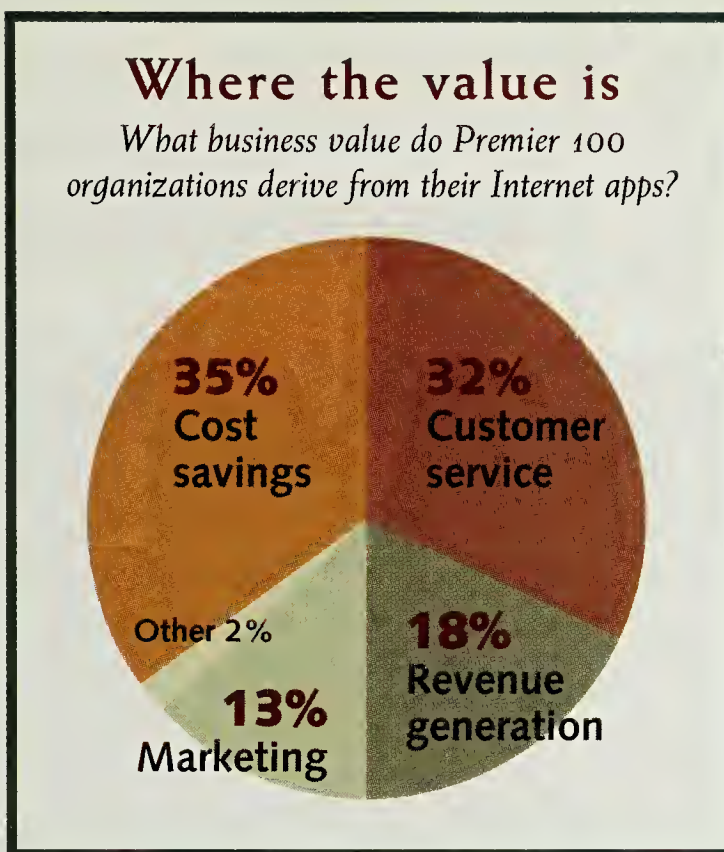
Also, conduct market research and collect information about visitors to your Web site. Cambridge, Mass.-based Arthur D. Little, Inc. did just that and determined that, at least for now, its customers are not looking for online transactions. Currently, the consulting firm is giving away brochures and

information we're taking or our own network in the process," says Pete Stark, manager of corporate information services at the U.S. Postal Service. It may opt for a system that gives users personal identification numbers rather than requiring them to enter their credit card numbers over the Internet.

MORE ISSUES

Scalability and building an infrastructure to support transactions are other big issues for Premier 100 organizations. Ask one who knows: Peapod. "When you start scaling up, hardware becomes much more sophisticated," says Parkinson, whose company added Hewlett-Packard Co. HP 9000s to handle the volume. The demands on Peapod's system are substantial. "It's more difficult for us than for many online companies because our database [Informix Version 7] gets hit for very large lists while shoppers are searching for items," he says. The average order size is about 50 items.

Infrastructure is what's holding up a full rollout of transactional intranet applications at Bechtel Corp. The engineering and procurement company is piloting two applications on its intranet



Source: 1997 Premier 100

that will go live as soon as it gets everyone set up with Web browsers, likely by later this year, says Michael Albert, who is chairman of Bechtel's Web advisory board and is based in Houston. One application lets people in the company post job openings; the other provides financial information.

Infrastructure of a different sort — legal, tax and organizational issues

among the corporate parent, retail stores and global marketing staff — have kept Levi Strauss & Co. on the transactional drawing board.

The company's Web site was launched in October 1995, and its first transactional application — selling items such as memorabilia and collectibles related to the Levi's brand — is just under consideration for 1997, says webmaster Rick Trapp. Besides strategy, the company has to figure out how to handle fulfillment and whether credit card transactions should be processed on-site or outsourced.

Where Premier 100 organizations have gone forward with Web-enabled transactions, opportunity — responding to customers, testing the waters, capturing mind share or staying abreast of competitors — has been worth the risks, though such goals as financial payback and time savings often won't come until later.

For the Bank of America, offering its

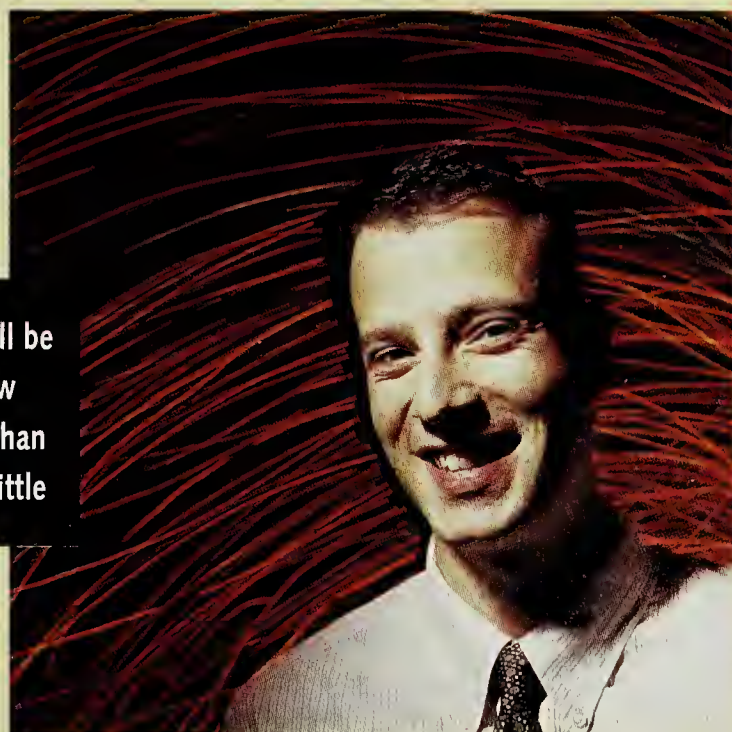
copies of articles about the company, not selling them. "They want to find information," Ben Zipkin, interactive marketing manager, says about the customers. The company redesigned its Web site this past summer with improved navigation and a lot more content, "but we spent more than half of that [three-month period] thinking what we wanted to accomplish," he says. "Right now, with the state of the Internet and so many issues about how secure elec-

tronic commerce is, it's just not something we want to focus our resources on. We've done well building awareness with our site and have gotten enough benefit from that."

That might be enough for your company, too, at least until more third-party tools are available to help you build, secure and track online transactions a year or two down the road. "You don't want to rush out

with something that's useless to folks you want to attract, but it would be a waste of time to wait until you get it completely right the first time, because

there is no way to do that," says Frank Gens, senior vice president of research at International Data Corp. in Framingham, Mass. If you've done some serious thinking about the message you want to present and know what you want to offer customers, Gens says, "then it's just as well to get out



"Maybe a couple years down the line, we will be interested in doing online billing, but for now we'd rather give people things off the Web than sell them things." — Ben Zipkin, Arthur D. Little

there, take the lumps and learn some lessons. It's a great opportunity to learn about your customers."

— Kathleen Gow

Home Banking services over the Internet was a natural extension of its proprietary direct-dial service, which has been in place for more than a decade. It was an option Home Banking customers said they wanted. With that feedback, says Catherine Graeber, senior vice president in the Interactive Banking Division, the bank decided to hedge its bets and build an interface from the bank's direct-dial product to both the Internet and America Online.

Starting with information about its products and services and a few calculator functions, such as figuring out the mortgage amount a home buyer can afford, Bank of America later added E-mail, credit card and loan applications, account access and bill payment. "We've learned a tremendous amount about what attracts [customers] and what doesn't," the bank's Newton says. "Where the issues used to be primarily about security, now they also concern response time and speed."

For Bechtel, using the two transaction-oriented applications in-house is already paying off. "We can quickly get [software] out to everyone without having to load something onto everyone's

Picking up business

Value of goods and services expected to be traded over the Web in 2000

Business-to-business sales	\$120B
Business-to-consumer sales	\$45B

Source: Input, 1996

desktop," Albert says. The financial application also helps employees in offices with little network infrastructure, such as in the Asian Pacific region, dial in to the corporate intranet and access financial data, he says.

NOT FOR EVERYONE

For all the Premier 100 organizations that are offering Web-based transactions and all those held up by various concerns, there are some for whom slow adoption is actually a strategy.

Stark at the U.S. Postal Service, who is just beginning to develop with Java, is being careful not to implement something that the majority of customers — those without the latest versions of Netscape's and Microsoft Corp.'s browsers — can't access.

Levi Strauss espouses a similar approach. "We want technology that is accessible by 90% of our visitors — so either Netscape 2.0 or Internet Explorer 2.1," says Alisa Weiner, the company's senior marketing manager for the Internet.

Cambridge, Mass.-based consulting firm Arthur D. Little, Inc. is quite happy with its recently revamped, and decidedly nontransactional, Web site. "Maybe a couple years down the line, we will be interested in doing online billing," says Ben Zipkin, interactive marketing manager. "But for now, we'd rather *give* people things off the Web than *sell* them things."

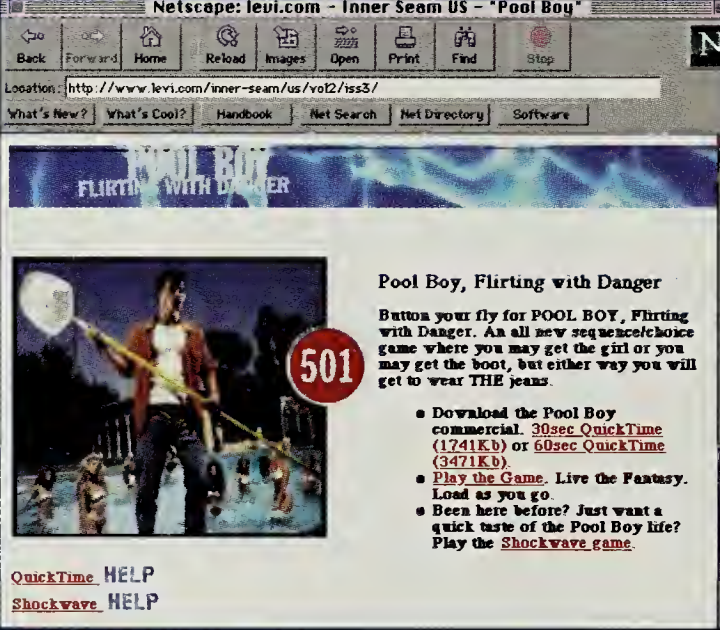
▷ GOW IS A FREELANCE WRITER IN MEDFORD, MASS.

STATIC VS. DYNAMIC SITES

Netscape: levi.com - Inner Seam US - "Pool Boy"

Location: <http://www.levi.com/inner-seam/us/vol2/iss3/>

What's New? What's Cool? Handbook Net Search Net Directory Software



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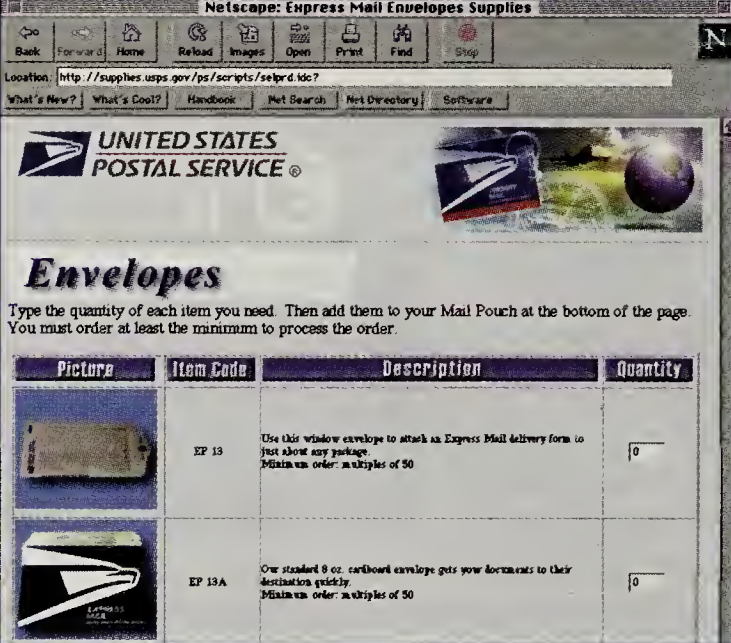
Levi Strauss

Levi's Web site (www.levi.com) doesn't offer transactions yet; rather, it is designed to reinforce the brand image of youthfulness and originality, build a dialogue with consumers, enhance customer service capabilities and extend marketing campaigns, such as the one for "Pool Boy."

Netscape: Express Mail Envelopes Supplies

Location: <http://supplies.usps.gov/ps/scripts/selpd.idc?>

What's New? What's Cool? Handbook Net Search Net Directory Software



UNITED STATES POSTAL SERVICE®

Envelopes

Type the quantity of each item you need. Then add them to your Mail Pouch at the bottom of the page. You must order at least the minimum to process the order.

Picture	Item Code	Description	Quantity
	EP 13	Use this window envelope to attach an Express Mail delivery form to just about any package. Minimum order: multiples of 50.	0
	EP 13A	Our standard 9 oz. cardboard envelope gets your documents to their destination quickly. Minimum order: multiples of 50.	0

U.S. Postal Service

Business customers can now order Express Mail supplies from the Postal Service's Web site (www.usps.gov). Security isn't a big concern: Supplies are free, so customers don't need to enter a credit card number.

Better communication.

Better teamwork.

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Better planning.

Better management.

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Better integration.

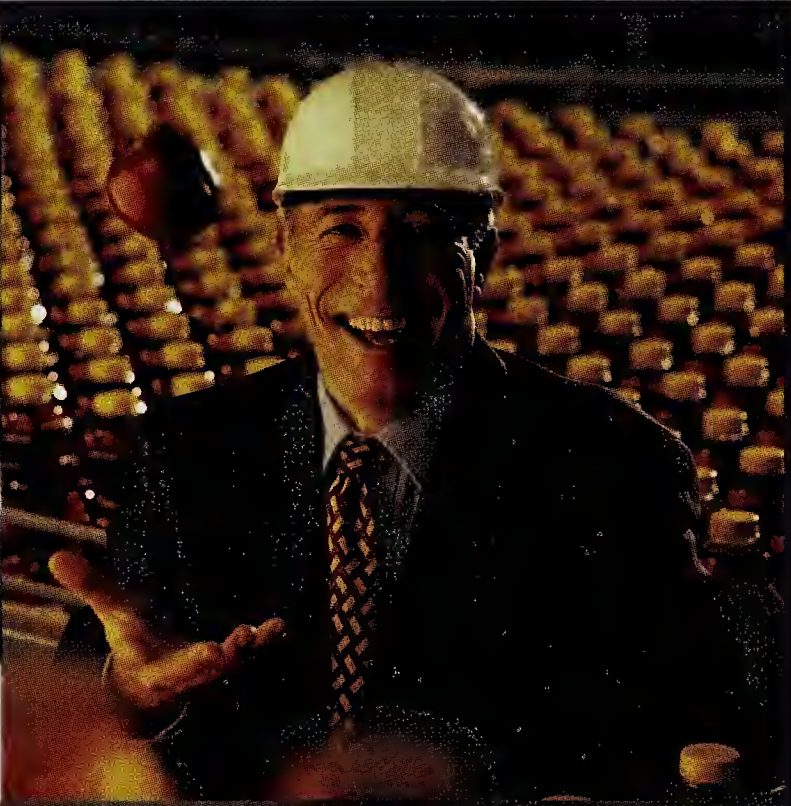
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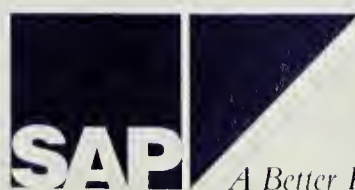
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Start Small Think Infinite

First you used the Web to streamline one of your business functions. Now you know the possibilities, and you're going for broke. By Alice LaPlante



"It's like driving a car at night. You can't see farther than your headlights, but you can make the entire trip that way."

That's what novelist Robert Stone replied when asked how he could write his complex and densely plotted books without using outlines. But Stone, most widely known for his National Book Award winner *Dog Soldiers*, easily could be speaking for technology managers at Premier 100 organizations. How so? Most say they're traveling a surprisingly serendipitous route to online nirvana.

For Dave Krauthamer, manager of information services at Parker Compumotor, realizing the true innovation an intranet enables "came pretty gradually." The manufacturer started out by putting its human resources materials online. Now, the company does everything from qualifying and tracking sales leads to performing real-time quality assurance testing on the intranet. "Now, of course, we can't keep up with all the possibilities," he says.

Like Parker, many Premier 100 organizations embarked on their first intranet/Internet projects because the technology promised a faster, cheaper and better way to do the sorts of things they've always

done. But it didn't take long for truly innovative ideas to begin percolating. Here are four companies' stories.

KEEP ON TRUCKIN'

In early 1996, J.B. Hunt Logistics, a division of the Lowell, Ark.-based transportation management firm J.B. Hunt Transport Services, began experimenting with using a home page to communicate with customers and provide them with basic order-tracking capabilities. Easy stuff. It was going so well, in fact, that Tracy Black, Hunt's director of IS, wanted to find other ways to apply the technology.

The opportunity came sooner than anyone expected. Shortly after the initial home page was completed, Hunt landed a contract to manage all of JC Penney Co.'s transportation logistics. Hunt promised to provide the retail giant with a way to check on the status of any shipment in real time — that is, any of the 70,000 truckloads of goods from 500 vendors shipped annually to Penney's warehouses. Here was the tricky part: The capability had to be operational by July 1,

1996, when Christmas inventory shipments began rolling in to Penney's distribution centers.

That gave Black and her staff just 60 days to design, build and implement a strategic application that would allow real-time data to flow through the disparate legacy systems of the two companies. "We ran through all the possible technologies we could use and very quickly narrowed our choice down to the Internet," Black says. In six weeks, her team built an application that gives Penney employees access to Hunt's logistics database via the Internet. Total cost: just \$30,000.

Payback is visible on all sides. The application has allowed Hunt to manage the Penney account with 15% less personnel than would otherwise have been needed, Black estimates. And Mark Christos, Hunt's director of operations, lauds the benefits of an application that can be easily adjusted to fit other clients' needs. "Customers are tremendously excited about this," he says.

KEY COMMUNICATION

"For us, the 'aha' came a year ago," says John Woodson, vice president of advanced development at KeyCorp, the financial services giant based in Cleveland. Having successfully launched a Web site (www.keybank.com) that provides a comprehensive catalog of KeyCorp consumer products and services — including a "virtual" multimedia tour of a KeyCorp branch — Woodson and Steve Maynard, vice president of Internet services, realized they could apply the same technologies internally.

The problem they decided to tackle: the inefficiencies of what Woodson called the "cascading communication model," where important corporate information was being disseminated when "A told B, and B told C," Woodson says. "We didn't like the fact that getting your hands on the latest information depended on who you knew and how nicely you asked them."

Thus, Keynet — which transformed the company's host-based

Continued on page 26

Answering the call from cellular providers

When Jim Baird was told that his firm had made a contractual commitment to let clients check the status of their multimillion-dollar construction projects online in real time, he took a deep breath and considered his technological options.

There were three possible solutions. "And frankly, the first two scared the day-lights out of me," says Baird, network manager for international engineering firm Black & Veatch in Overland Park, Kan.

That was in early 1996, when B&V's telecom division landed juicy deals with a number of telecom giants to manage the construction of tens of thousands of cellular towers to support the new personal communications services (PCS) cellular phone systems for frequencies just licensed from the Federal Communications Commission. As firms rushed to establish new cellular networks, B&V promised its clients it would figure out a way to keep them on top of the day-to-day progress of construction permits, licensing deals and other developments at each site.

Because "the first company to get their towers up can expect to capture a lion's share of the business," speed was essential, Baird says.

He figured there were three ways to give telecom vendors the information they needed. His first thought: traditional client/server. B&V could distribute laptops to the construction managers, who would track the information and regularly dial in to B&V's headquarters to upload the data to a database server there.

But Baird told B&V managers that the results of attempting this "wouldn't be pretty." "Could we really expect hundreds of people independently to keep local databases current and dial in regularly enough so we could figure out a way to create coherent management reports?" he says.

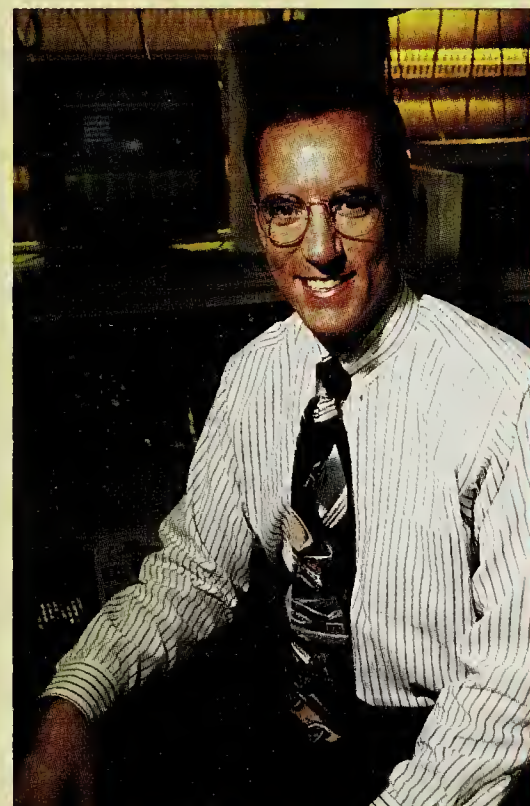
The second option was to give users in the field dial-in terminal access to a main-frame database utility that would accept direct input about project progress. But Baird thought the costs of installing a modem pool would be prohibitive, and the application's functionality would be limited.

The third solution — using the Internet — turned out to be the charm, Baird says.

Since all the client companies were telecom providers, their Internet access was ubiquitous. It didn't matter what hardware or software platforms were used in the field.

And developing the application turned out to be fast and cheap. Using C++, Baird's staff wrote a front-end Web application that allowed any Internet user, after being cleared by security procedures, to call up screens that walked them through relevant questions. That application, which resides on a Sun Microsystems, Inc. SparcStation Web server, then transfers the data back to an Oracle Corp. database residing on a separate Sun SparcStation behind the firewall. "The application on the Web server talks to the database server, so the end users never have direct access to our database," Baird explains. "The good news is that our clients looked at it and said, 'Wow.' The bad news is that they said, 'If you can do this, you can do these 150 other things, right?' "

— Alice LaPlante



B&V's Jim Baird: System lets clients get construction updates via the Internet.

Continued from page 25

executive information system into what Woodson calls "everyone's information system." The prototype was built in less than a month for just \$80, and the production system was up and running a mere 90 days after that. The final cost of the system was nearly \$300,000, but that included all the additional servers, hardware and software, and infrastructure upgrades necessary to allow more applications to be layered on top of the network.

Now, more than 1,000 employees have access to 40 different content areas within Keynet. Woodson says the intranet is accruing 50,000 to 60,000 hits per month, and the savings on printing and distribution costs alone cover project expenses. Take the fact that Woodson intends to put all corporate forms online.

"Since people only print off what they need when they need them, we eliminate all the related costs of storing paper: warehousing costs, printing costs, distribution costs," he says. The more efficient flow of information adds value, too.

COMPUMOTOR CONTINUES

The Compumotor Division of Parker Hannifin Corp., an industrial automation manufacturer in Rohnert Park,

Calif., didn't set out to cure a major ill, but to save a little money, says Krauthamer, the information services manager. The idea was to eliminate document printing and distribution costs by putting basic HR materials — the policies and procedures handbook, the employee telephone directory and benefits reference manuals, among other things — on an intranet. It took Krauthamer six months and \$18,000 to do it; he estimates it's eliminated more than \$130,000 in annual document management costs alone.

But that was just the beginning.

Like many other companies, Parker Compumotor supports a number of disparate databases internally. Giving users the ability to piece together these various data sources — legacy databases, SQL databases and data warehouses — using a single front end "greatly enhanced their ability to drill down into important information and slice-and-dice the data as they wished," Krauthamer says.

Next? New territory altogether. Intranet applications currently under development include video and audio

aids for workers on the manufacturing assembly line.

And Krauthamer is especially enthused about plans to put up on the intranet assembly-line quality measurements that were captured during defect sampling tests. That will allow Krauthamer to loop the test numbers back to the workers almost immediately, instead of at the end of the month, as it's historically been done.

"The benefits you get from quality testing depend on how quickly you get the results back to the person doing the work," he says.

INFO EXCHANGE

At Southern California Gas Co., the first internal application of Internet technology is called PE Xchg. It facilitates the exchange of dispatches among field-based "competitive intelligence champions" — employees who volunteer, in addition to their regular jobs, to keep an ear to the ground and pass along anything of competitive interest to a manager at headquarters in Los Angeles. That manager, intrigued by an Internet demo given by Heather Copeland, the company's Web development manager, commissioned PE Xchg.

The project took three months to complete. The total cost of \$60,000 included new hardware and software that will be used on other intranet applications, Copeland says.

Meanwhile, the intranet idea has caught fire. Other departments are requesting versions of PE Xchg for their own use. And Copeland believes the intranet will eventually become an open forum for all employees to use for enterprisewide communication.

And the benefit of better communication is one that all companies, not just Southern California Gas, can appreciate.

What cost Parker Compumotor \$18,000 to do has already saved the manufacturer \$130,000 in document management costs.

Premier 100 applications

What business function does your Internet/intranet application support?

Marketing, sales, customer service	58%
Cross-functional or other administrative activities....	19%
Sales transactions	10%
Engineering	5%
Human resources	3%
Manufacturing	3%
Accounting	2%

Source: Premier 100 organizations

▷ LAPLANTE IS A FREELANCE WRITER IN WOODSIDE, CALIF.

Web-enabling an app saves \$350K

It wasn't that analysts at Pacific Northwest National Laboratory (PNNL) couldn't eventually get their hands on vital financial statistics about ongoing laboratory activities.

After all, for years, a mainframe-based application had been churning out end-of-period reports that captured the status of the dozens of environmental and energy-related research projects under way at any given time for the Department of Energy (DOE).

But until a team of technologists and scientists developed a Web-based version of this legacy system, employees routinely faced delays and frustration getting their hands on this basic data.

"Because it was so hard to use the old application, only a few went to the trouble," says Betsy Kennedy, a senior technical specialist who performed testing on the Web version at the Richland, Wash.-based subsidiary of Battelle Memorial Institute — one of nine DOE multiprogram national laboratories located around the country.

Today, the lab's Web Reporting System (WRS) allows any employee to use a Web browser to get information over PNNL's intranet the instant it's processed. Seven preformatted reports capture the most commonly requested data, including the current costs charged to each project; the number of hours spent on each project by individual lab employees; and how actual costs compare to projected costs. Employees can "subscribe" to whichever reports they wish to see on a regular basis. Currently, 2,000 of the 3,000 lab employees do just that. They can also perform ad-hoc queries on the financial database using their browsers.

And just as importantly, the application allows people situated around the globe — whether they're in Portland, Ore., Washington, D.C., or Ukraine — to collaborate on key research projects. This will not only cut costs, but also boost creative synergy for Battelle's worldwide network of scientists, researchers and analysts, says Tom Marr, who spearheaded the project and is manager of business management systems.

Meryl Birn, a PNNL scientist who worked on back-end development of the WRS, uses it as a personal time-management tool, regularly reviewing how many hours she's logged for a particular project and comparing how she's dividing her time among activities. Previously, she had to make requests of individual project managers to get this information.

But the benefits go beyond productivity. Marr estimates

that the lab saves \$350,000 annually from its port of the host application to the lab's intranet. How? There are savings on mainframe processing fees, and the lab doesn't need to hire data-entry clerks to manually key in data and download reports. Central printing charges and distribution costs are also slashed, as the reports are now sent directly to the users' desktops in electronic form.

The actual cost of the project is harder to quantify. Marr's group first attempted to use a client/server product to do the job, but found that the claims of cross-platform compatibility were seriously overrated. It scrapped that effort — but not



Tom Marr, front right, assisted by PNNL staffers, developed the Web Reporting System.

before significant dollars and time had been spent.

With the intranet model, it wasn't all smooth sailing either. "We found we needed to make certain compromises on the user interface," says Wade Erickson, a PNNL scientist who developed the Web interface for the WRS. For example, tasks as simple as using standard desktop cut-and-paste tools to transfer data between on-screen windows were difficult to implement in the Web interface. Birn notes, "We ended up having to do workarounds to get the sorts of features that come standard in PowerBuilder or Visual Basic."

Marr now estimates annual maintenance costs for the application to be about \$25,000. Currently, one full-time employee is required to maintain the application; Marr expects this position will drop to half-time within six months.

But new ideas for applying the Internet/intranet technologies are flying thick and fast. "We're more limited by funds than by what's possible," Marr says. "The intranet is going to be a key part of whatever we do here at the lab from now on."

— Alice LaPlante

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been updated. "We hit the top of the bell curve," Mager laments.

Like many companies, Great American Teddy Bear had built a Web site, and the visitors had come. The problem was, they didn't come back.

"A lot of people think that if you put it on the Web, then suddenly 10 million people are going to show up and you'll be able to sell anything. That's dead wrong," says Ted Rasch, president and chief webmaster at The Solution Zone, a Westbury, N.Y.-based Web site developer.

So how do you know if and when you've hit a home run? Well, maybe never — it's a continuous process.

"Just because your site was successful last month doesn't mean it will be successful next month or in the future," Rasch says. "You've got to market your site, just like anything else. You can't just sit back."

Premier 100 organizations have figured that out — some of them, the hard way. Others have been more prepared. How? Some have previous online experience. Some vigorously solicit reader feedback and implement changes quickly. Others know their demographics and how to reach their audience; they make sure search engines pick up their site; and they update content and visuals to keep visitors coming back. These are what distinguish the players from the one-hit wonders.

A WELL-READ SITE

Amazon.com, the cyberbookstore that went live in July 1995, decided not to take any chances. It had an extended beta test to make sure it knew what customers wanted up front — and it worked. "We found bugs and rough edges, things that were confusing to our beta customers that weren't obvious to us," says Jeff Bezos, chief executive officer at Amazon.com, whose revenues have grown 34% a month since the site went live.

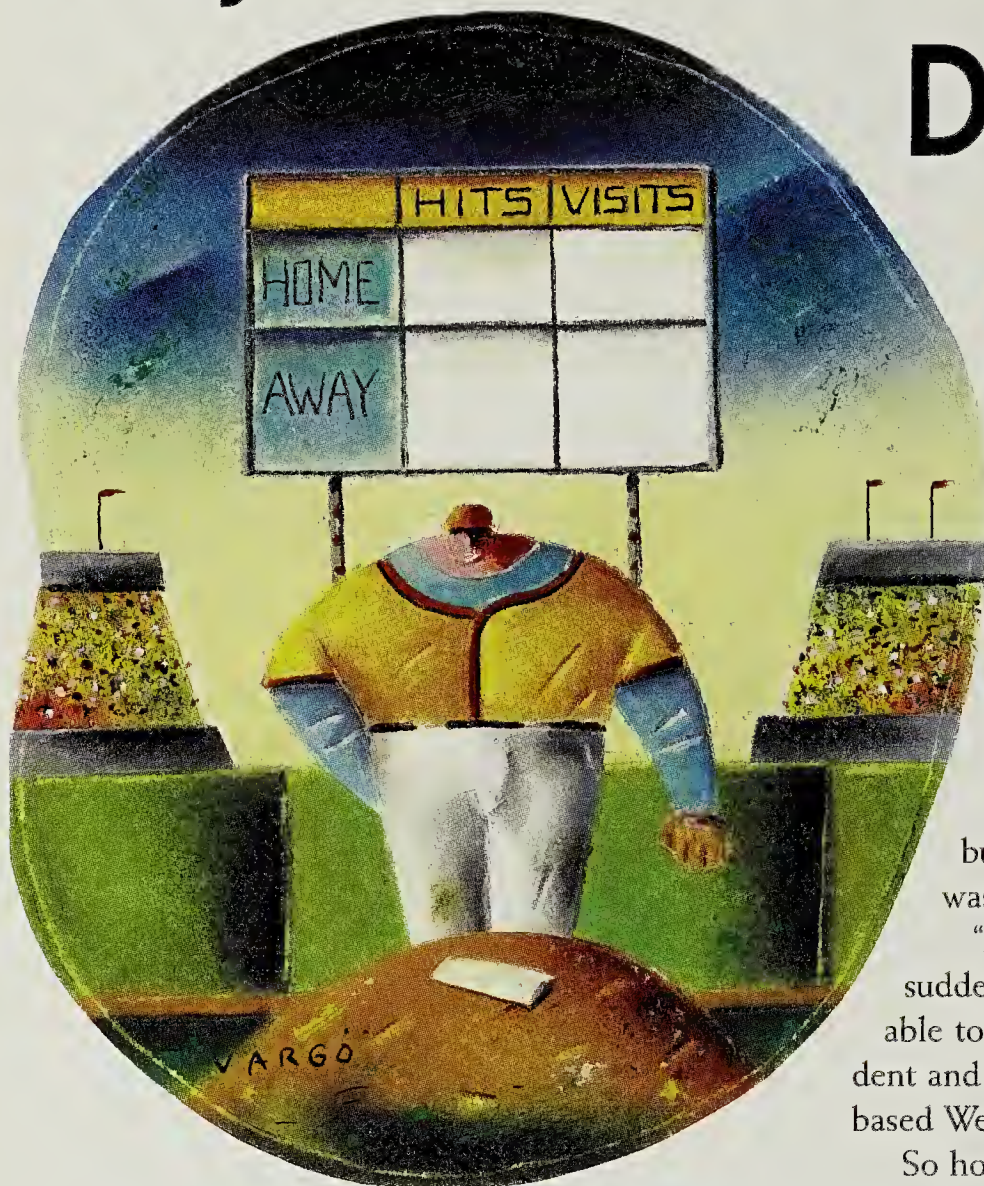
For example, the company found that the software that ran its site (www.amazon.com) mistakenly allowed customers to order negative quantities of books. That could have wreaked havoc with

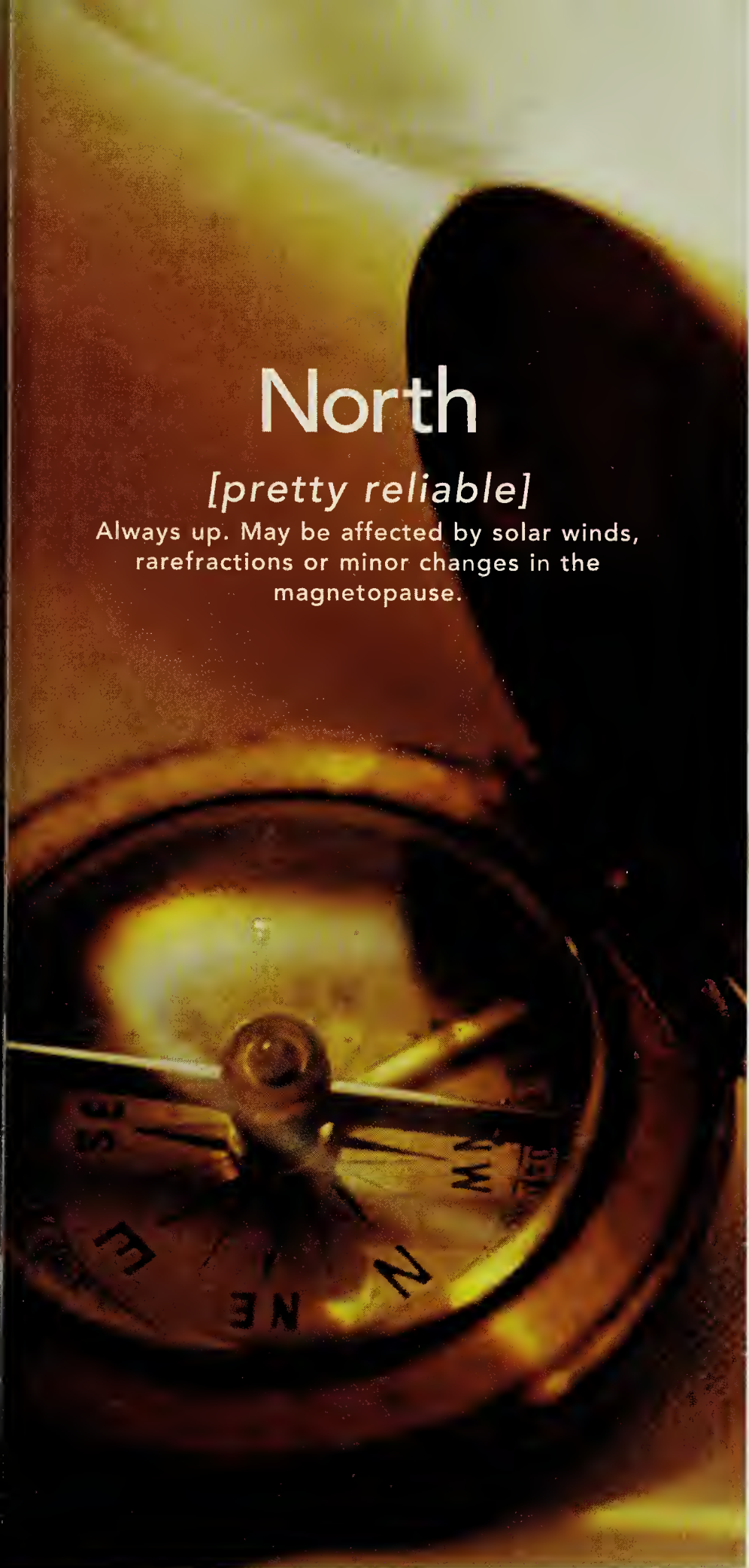
Continued on page 32

By Thomas Hoffman

When The Great American Teddy Bear Co. launched its World Wide Web site last July, it averaged 3,000 hits per week. During the next two months, visitors generated \$50,000 in new orders. It looked as if the site (www.vtbear.com), which cost just \$2,500 to build, could be a gold mine, says Andy Mager, marketing manager for the Shelburne, Vt.-based teddy bear maker.

But in October, interest suddenly began to dwindle. The chief cause? The site hadn't





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Continued from page 30
the company's inventory database.

The beta test, which allowed customers to give feedback via electronic mail, also resulted in direct service enhancements.

Users asked, for example, for an additional shipping option; originally, the options were standard shipping, which is inexpensive but takes anywhere from two to 12 weeks, and two-day service, which costs \$42 for two books. Now the company offers a two- to three-week delivery service that costs \$19 for two books.

E-mail "is such an easy medium to say what you think," Bezos says. "If you're in a restaurant, you're very unlikely to walk into the kitchen and tell the chef you don't like the food. But you might be more willing to do that with E-mail."

HEAD START

Companies with previous online experience may have a leg up on those who are new to the Internet. CUC International runs NetMarket: The Shoppers Advantage (www.netmarket.com), one of the largest shopping services on the Internet with a database of 250,000 consumer products from jock straps to washing machines. The first incarnation of Shoppers Advantage was launched in 1978 on CompuServe and Quantum, the predecessor of America Online, Inc. The Internet version came out in August 1995.

"We've been around for a while and made our mistakes and learned what we needed to do here," says Rick Fernandes, executive vice president of interactive services at CUC.

In all, CUC has attracted 300,000 members, who pay a \$50 annual fee for access to merchandise at cut-rate



Joshua Tretakoff of The Sharper Image hopes Internet-based sales make up 25% of the gadget retailer's sales by 2000. "The key is treating the Internet as part of your business instead of a whole new media," he says.

prices. The membership fees are where CUC makes its money — its portion of the products' prices just covers the cost of the transactions. "It's going to be tough for start-ups [on the 'net] to succeed" if they aren't growing fast enough to justify their infrastructure costs, Fernandes warns.

Yet some start-ups are succeeding. PictureVision, Inc. in Sterling, Va., working with photo retailers, offers a service called PhotoNet (www.photonet.com) that lets customers have their pictures scanned and uploaded to a Web site. Then, friends and relatives anywhere can view them and order copies, which are printed and available at local photo stores.

the URLs

**THE GREAT AMERICAN
TEDDY BEAR CO.:**
www.vtbear.com

AMAZON.COM:
www.amazon.com

CUC INTERNATIONAL:
www.cuc.com

PICTUREVISION:
www.photonet.com

THE SHARPER IMAGE:
www.sharperimage.com

Using this process, a new grandpa in Chicago ordered an 8-by-10-inch glossy of his newborn grandchild in Atlanta and picked up the picture later the same day. That transaction went through Wolf Camera and Video, Inc., an Atlanta-based retailer with 280 outlets that is one of the half-dozen retailers that offer, or soon will offer, the service. "It was so cool — we beat FedEx," gushes Cliff Whitney, Wolf Camera's director of digital imaging development.

Wolf Camera, which has offered the service since last February, pays

2% of its receipts to PictureVision and now has 4,000 active members, Whitney says. That's about 150 rolls of film a day — a scant 0.5% of all its film business. But Whitney says Wolf Camera expected to break even on the online investment in 1996 and go into the black this year, since its investment in PhotoNet is limited to scanning equipment and people to run it.

NIGHT VISION

Having a product line that meshes with the key demographics of Internet users gives some companies an immediate advantage. The Sharper Image Corp., which sells a line of 1,200 innovative gadgets, such as night-vision binoculars, to the predominantly male 28- to 40-year-old crowd, has seen its online sales double nearly every month since it launched its site (www.sharperimage.com) in October 1994.

How? By letting its customers "dictate where we're going," says Joshua Tretakoff, manager of alternative media.

That direction comes from the roughly 300 E-mail messages the retailer receives each day from customers. When they ask for more outdoor electronic devices like binocu-

lars, they get them: The firm added the item to its site last May.

The Sharper Image, which had more than \$200 million in sales in 1995, hopes Internet-based sales will make up 25% of its total volume by the year 2000. "The key is treating the Internet as a part of your business instead of a whole new media," Tretakoff says.

Of course, not every site can sustain

its initial momentum — but it's never too late to reinvent your offering.

In mid-November, Great American Teddy Bear unveiled a redesigned site sporting a new logo, new financial information and new products, such as National Football League-licensed items that weren't previously promoted on the site. The company also plans to advertise in magazines that appeal to 18- to 54-year-old men —

the primary demographic for one of the company's busiest holidays, Valentine's Day.

Mager is optimistic. "We probably should have done a little more research before we launched, but we're moving forward," he says. "I see great potential over the next five years."

▷ HOFFMAN IS A COMPUTERWORLD SENIOR EDITOR.

Utne Reader refocuses the Lens

Scaled-down magazine Web site, with new Cafe Utne, is more popular than ever

When Utne Reader launched a Webzine, the Utne Lens, in July 1995, the decision looked like a no-brainer. The biweekly online magazine complemented the alternative-culture bimonthly print product with fresh news and opinion pieces on hip topics like the body, mind and spirit — articles that were edgy for young, online readers.

The site (www.utne.com) drew rave reviews. Advertising dollars started to pour in. General Motors Corp.'s Saturn division bought a three-month spot for \$60,000. The Minneapolis-based publisher's \$500,000 online investment was starting to pay off.

The site amassed 25,000 hits in August 1995. Then, the same number in September. And October. Then, suddenly, the Lens didn't look so sharp. With newsprint costs skyrocketing, Utne Reader, an outfit with small cash reserves, was forced to revamp the Lens. With a six-person staff, the Lens "was a liability" to Utne Reader, says Griff Wigley, new media manager at Utne.

In late October 1995, the Lens' staff was reduced to two people and its 1996 budget was slashed to \$140,000, including salaries. That's when Wigley decided to "refocus the Lens." Instead of running a content Web site that served Utne's print readers, the publisher decided to try and reach new readers who weren't subscribing to the print version.

That month, Utne Reader revamped the site with Cafe Utne, a collection of 45 newsgroups. People can enter the

site and participate in chat groups on topics including film, literature, parenting, relationships and Generation X. To make sure the conversations keep flowing and don't become combative, the newsgroups are monitored by moderators, who are paid a flat fee of \$50 per month for each one they oversee.

To support the newsgroups, Utne Reader installed a Web conferencing system called Motet, which allows visitors to engage in interactive discussions.

Since the Cafe was launched, the site's popularity has soared to 80,000 hits per month as measured by Internet Profiles Corp., a San Francisco-based Web auditor (not to be confused with AC Nielsen I/Pro, a competing auditor).

Cafe Utne members don't have to pay to participate, but the company has used some innovative approaches to entice them. For \$36 a year, members receive a year's subscription to Utne Reader (regularly \$18), a CD-ROM and access to members-only conferences. There are now about 200 paid members.

Utne plans to offer an online payment service through which members can pay \$3 a month via Cybercash or another electronic commerce outfit, according to Wigley. For now, members can call in or E-mail their credit card numbers.

"We feel like we've learned a lot," Wigley says, adding that he expects the site to become profitable by the end of the year.

— Thomas Hoffman



Since the site revamp, Griff Wigley is targeting readers who don't subscribe to Utne Reader in print.

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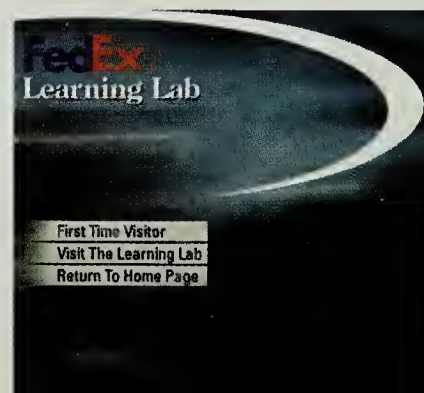
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Keeping up with the

BY NATALIE ENGLER

In November 1994, Federal Express Corp. introduced Web-based package tracking services, and the race was on.

A month later, United Parcel Service of America, Inc. got its World Wide Web page up; by May 1995, it offered a package tracking feature, too. In July 1995, DHL Airways, Inc., trailing but not out of the running, joined the Web fray.

It was, and is, a high-stakes game of leapfrog, where the ante is innovation and today's leader could be lapped tomorrow.

In the package delivery industry, tracking wasn't enough for long. Web-based shipping services, a drop box locator and a cost calculator quickly followed. And new features continue to be added.

Keeping up with the competition, whether it's aptly named FedEx CIO Dennis Jones or the aggressor in any industry — or even just the technical and use demands of a moving target — is one thing Premier 100 organizations are good at. It ain't easy. It means introducing new features every three to six months;

adding, removing and revising content daily; fixing broken links; and keeping track of which competitors are working on what. Nor is it cheap. But those are the hurdles our Premier 100 organizations are clearing.

"With a Web site, you are never done," says Josh Bernoff, a senior analyst at Cambridge, Mass.-based Forrester Research, Inc. Maintaining one is no longer about creating splashy pages, he says. "It's about devising a process that allows you to continue to deliver information without going crazy." That process, he estimates, consumes 20% to 25% of Web site budgets.

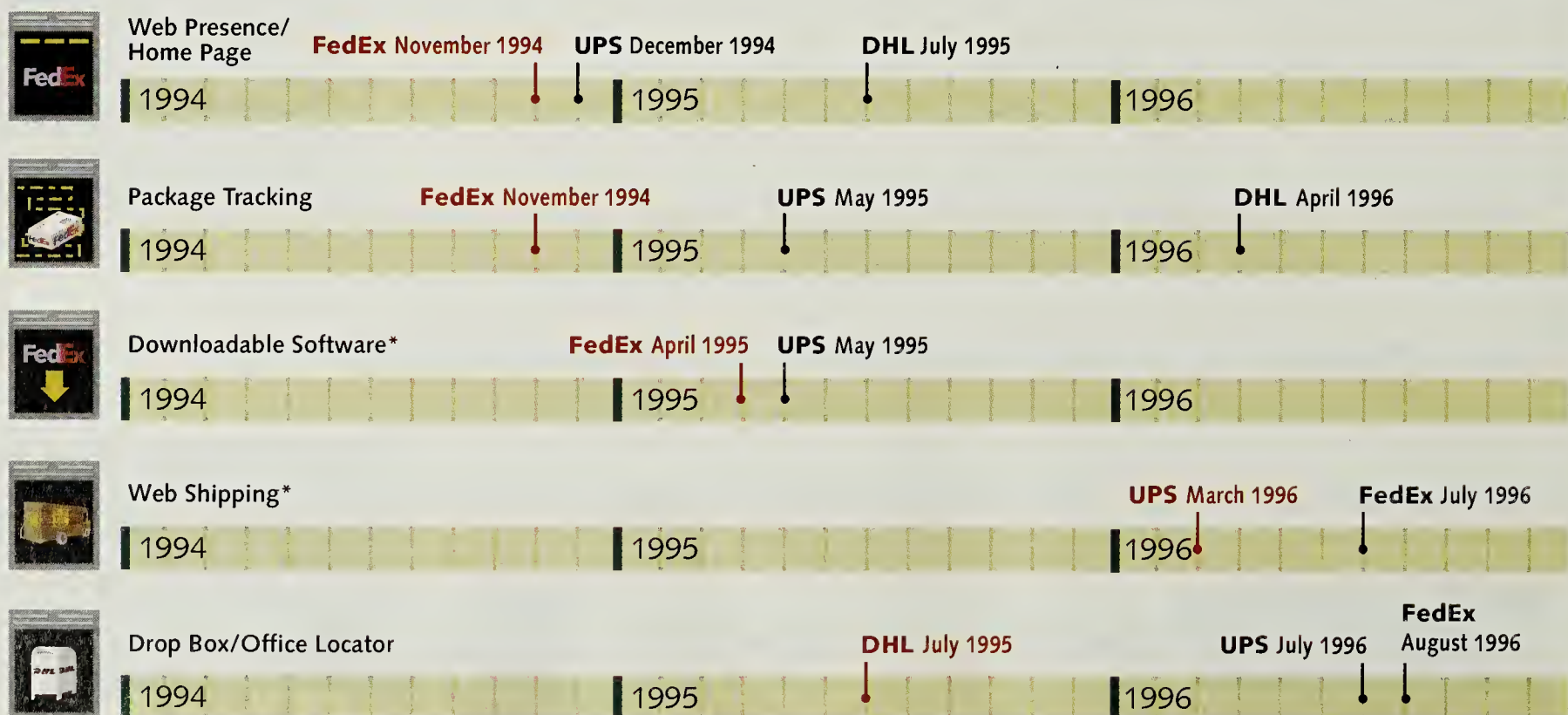
STARTING OVER

Bernoff's assertion doesn't surprise Alan Boehme, DHL's director of customer access and logistics. His company is looking at a \$500,000 to \$800,000 relaunch of its Web site to equip it for future growth.

Customers use the site to track shipments worldwide and to receive regularly updated news about the network's operations. Unfortunately, like many Web pioneers, DHL structured its site as a collection of

Web Site Milestones in the Package Carrier Industry

FedEx leads the pack in rolling out new features, but UPS and DHL are keeping pace.



Source: FedEx, UPS, and DHL. In addition to the above, UPS has offered a cost calculator since February 1996, and FedEx began offering online account registration in October 1996. *DHL does not offer some services because its core business is international; it will consider offering them when it can make the services available internationally.

Joneses

Getting your site up is just the beginning.

Keeping in step with your competitors — and just the technology itself — keeps the pressure on. Just ask

FedEx CIO Dennis Jones.

hard-coded HTML pages instead of creating what Forrester calls a “dynamically generated site,” in which each page is constructed based on information in a database. That means changes, such as introducing a new location or reacting to the Australian phone company’s addition of a digit to every telephone number, create a “maintenance nightmare.” Boehme estimates that maintaining, improving and extending the site costs DHL \$150,000 a year — not including hardware.

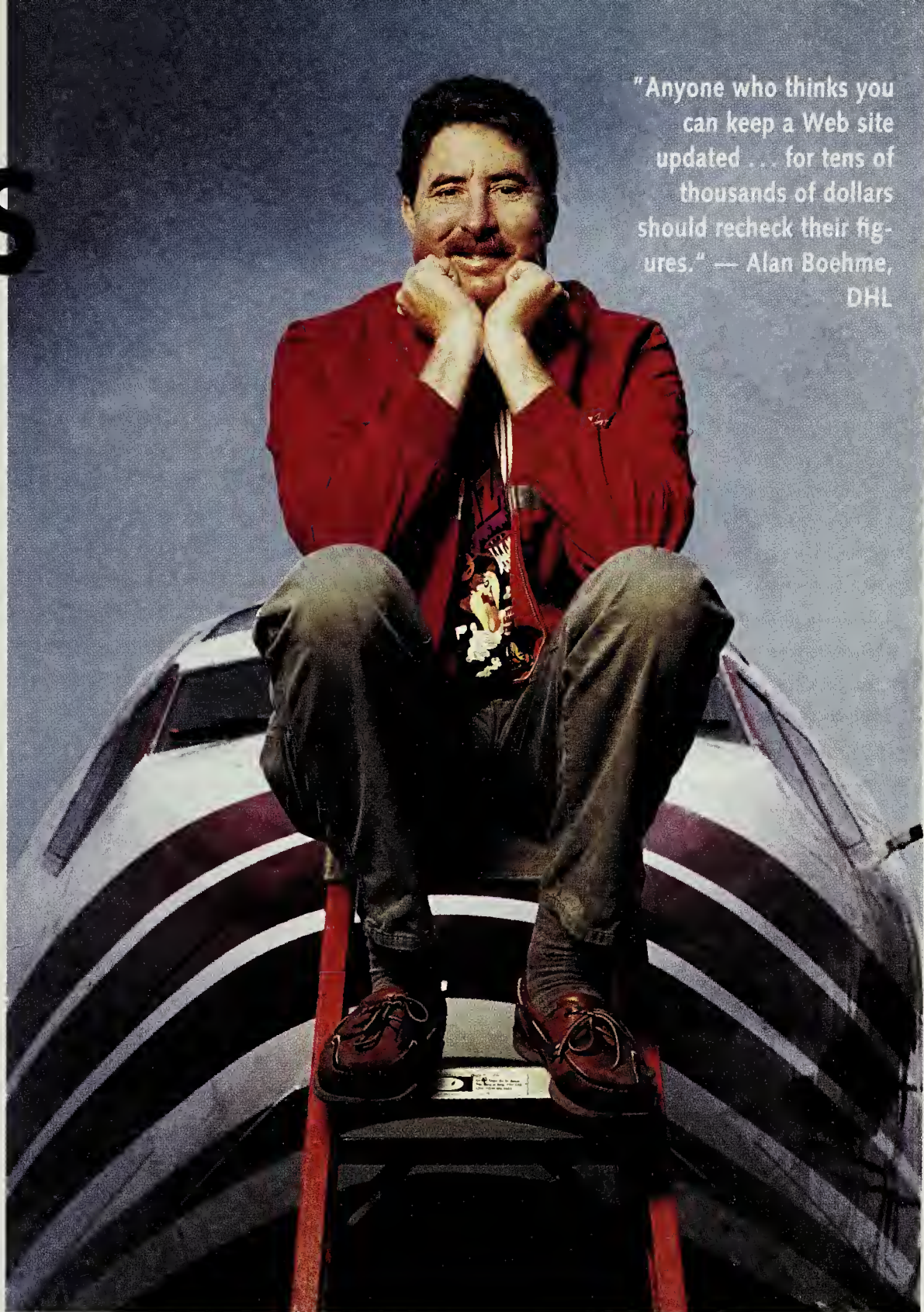
Now, the company is in the process of “changing everything,” Boehme says: the home page, linked pages, navigation and all the links to legacy systems (except for the back-end tracking system, which hits databases in Brussels, Singapore and San Francisco simultaneously and offers a 1½ second response time).

The goal is to allow the 227 countries in the DHL network to build, maintain and support their own services and be able to convey up-to-the minute information regarding specific world events — such as a recent truck drivers’ strike in Greece — that may impact transit time. Right now, the company makes that information available via phone or fax. “The Web is the next logical extension to that,” Boehme says.

MISSION-CRITICAL APPROACH

The challenge of Web refinement, maintenance and upkeep goes beyond the package delivery industry,

“Anyone who thinks you can keep a Web site updated ... for tens of thousands of dollars should recheck their figures.” — Alan Boehme, DHL



especially for advertising-laden sites such as those of Nation’s Restaurant News and Columbia/HCA Healthcare Corp. (More on those in a moment.) But for DHL, FedEx and UPS, the task involves treating the Web “just like any other mission-critical system,” says Winn Stephenson, vice president of network computing at FedEx.

FedEx’s Web site, which receives an average of 26,000 tracking requests a day, is so well integrated into the company’s core processes, Stephenson says, that it is impossible to isolate the time and expense involved in keeping it updated. The process involves people from across the 220,000-employee organization. An electronic commerce marketing group designs and structures the Web pages. A data protection group handles security. Project managers develop new applications. People from the legal and public relations departments oversee content. And six full-time and three part-time systems people manage the

UPS is also formalizing its Web site process. In its "third phase" of site management, it created a full-time team of a few dozen people who are responsible for Web operations, says Tom Hoffman, UPS' public network access development manager, who heads the team.

Maintaining mission-critical applications on a Web site is more intense than maintaining the other applications up there. When FedEx's and UPS' sites receive their frequent updates and significant enhancements, the companies often have to write and test software and synchronize it with all the other applications.

Such changes also introduce the enormous challenge of determining priorities. FedEx analyzes various pieces of information, such as customer feedback — it codes and subcodes each electronic-mail suggestion and conducts online and telephone market research — as well as bottom-line impact, says webmaster Nancy Raileanu.

Competition certainly isn't restricted to the package carrier industry. In August 1995, Columbia/HCA Healthcare transformed its site from an online

FEDEX: www.fedex.com

UPS: www.ups.com

DHL: www.dhl.com

NATION'S RESTAURANT NEWS:
www.nrn.com

COLUMBIA/HCA HEALTHCARE:
www.columbia.net

brochure to a health-care information resource, with more than 3,000 pages of content. True, at that time, it was the only service of its kind. But today, as hospitals and companies outside the health care arena get 'net-savvy, "trying to maintain our lead becomes more time-consuming," says Tod Fetherling, director of interactive marketing.

Fetherling manages the site with five other marketing employees and two IS people. The team spends more than 40 hours a week scoping out rivals and tracking what's on their own site. But he says that maintaining Columbia/HCA's site costs less than \$200,000 per year — well below the industry average for a site its size. (The average is between \$300,000 and \$1 million, according to a

1996 AdAge NetMarketing report.) Fetherling attributes the efficiency to in-house management of the site.

DIGESTIBLE INFORMATION

Even those without a “Jones” feel the pressure. Take Nation’s Restaurant News (NRN), a 6-month-old New York-based online publication that targets the 120,000 food service operators estimated to have Internet access. Currently, says Will Rodgers, project director, it has no direct competition — other than itself.

"We start looking for news every morning and don't stop until that night," Rodgers says, noting that the staff updates news and financial information twice a day. Other areas of the 1,138-page site, such as information on cutting-edge restaurant architecture and designers, receive weekly updates. "The ambition is to become the trade CNN of the world someday," he says.

Like Columbia/HCA's site, NRN's is supported by advertising revenues. But managing and tracking these ads creates an additional burden for the staff. To help, NRN recently began using AdServer, distributed software from NetGravity, Inc. that remembers which ads have been scheduled for the most popular pages. That speeds the rate at which ads are posted.

Implementing the software, which enables sites to generate online performance reports for each advertiser, required a significant investment. (AdServer costs \$25,000 to \$200,000, depending on site configuration.) It also involved training four people to install and use it.

But Rodgers says it's worth it. "It has been helpful in keeping us off the wall with a big chart."

Weighing the investment required in a Web application is sound advice. "Anyone who thinks you can slap up a Web site and keep it updated and provide good business-to-business communication for tens of thousands of dollars," DHL's Boehme says, "should recheck their figures."



As part of its Web site overhaul, DHL is redesigning its home page (top). One proposed redesign appears below it. DHL is also adding a new Web server, staging server, proxy server, workflow tools, a Netscape Commerce Server and a tool such as Netscape's LiveWire or Informix's DataBlades, which will let the company build applications that snap in to its relational databases.

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MISSION municipal

BY STEVE ALEXANDER

From the flashy to the functional, the Web sites of Seattle, Cambridge reflect each city's persona

The cities of Cambridge, Mass., and Seattle are 3,000 miles apart in distance and \$487,000 apart in what they spend yearly to maintain their Web sites. But the

difference isn't just dollars — it's philosophy.

Elaborate graphics and Chamber of Commerce-like features characterize the Seattle site, whereas Cambridge's site reflects an interest in grassroots democracy. "We're trying to get visitors into the city, but it's more important to us to serve the people who are already here," a Cambridge IS official says.

Seattle's Web site (www.ci.seattle.wa.us) uses a mountain of varied content and flashy

the Seattle waterfront, you can hear the cries of seagulls.

In addition, citizens and prospective citizens can get information on everything from choosing a neighborhood to getting electric service started. Businesses can find out how to secure necessary permits to build and to do business with the city.

the sites

CITY OF CAMBRIDGE
www.ci.cambridge.ma.us

**CITY OF SEATTLE
PUBLIC ACCESS NETWORK**
www.ci.seattle.wa.us

Serve as virtual city halls and tourist kiosks, allowing access to government information.

Started in January 1995, the site costs \$500,000 a year to operate, says Jeffrey Crist, technical and creative director of the city of Seattle's Public Access Network.

"The most innovative part of our site is really just the sheer amount of information we've got up there," Crist says. "We have more information online than any other municipality near our size."

The site uses one gigabyte of data, which includes 2,100 Web pages, 10 searchable databases of city information, a few sound clips and more than 3,000 graphics files (photos, maps, diagrams and Web navigation icons). In a nod to the city's Pacific Rim neighbors, a regional overview is offered in 10 languages. And the site continues to expand; this year, citizens will be able to pay parking tickets



Todd Marinoff and Valerie Roman praise the practicality of Cambridge's Web site.

graphics in an effort to woo business, encourage tourism and help citizens deal with government. A "Seattle Virtual Tour" lets you see and hear the city: In Pike Place Market, the oldest continually operating farmers' market in the country, you can see great piles of seafood on ice while hearing a seller yell "\$3.99 a pound!" When you see people walk along



Seattle's Jeffrey Crist: "The most innovative part of our site is the sheer amount of information we've got up."

online with a credit card.

If Seattle's Web site is indicative of the city's capitalist, new money reputation, Cambridge's reflects that city's socialist bent. The site (www.ci.cambridge.ma.us) maintains a tight focus on promoting citizen participation in government, avoids commercialism and costs \$13,000 a year to operate.

The Cambridge site was started to reduce the number of phone calls city employees had to handle and to make it easier for residents to deal with city hall. It offers information on every city department, maps to help people find government buildings and tips on which buses to take to get there. There's also a bulletin board of upcoming meetings and events and an electronic-mail facility for corresponding with city officials. The site is visited by more than 1,000 people daily, although exact numbers are hard to pinpoint.

"There's a high rate of citizen participation in government here, and people in the city felt the Web site was another avenue to aid and abet that," says Todd Marinoff, city MIS manager. "Cambridge has about 70 boards and commissions, and, eventually, we'd like to get a list of all those meetings online."

Marinoff proudly cites an incident in which a resident complained through Web site E-mail that the electronic checkout scanners in a local store were inaccurate. An investigation found a 35% error rate in scanning and made news in *The Boston Globe*. In another case, an E-mail complaint by a local woman resulted in better lit city bridges for nighttime jogging.

Valerie Roman, Cambridge's MIS director, says bringing out that kind of citizen participation is more important than putting up flashy graphics. The site even has a guiding principle: noncommercialism. Site officials try to restrict the site's information to city or nonprofit events, Roman says. Even tourism isn't a top priority. "These are real-life uses of this technology vs. the snazzy features," she says. And for those who know Cambridge, that doesn't come as much of a surprise.

▷ Alexander is a freelance writer in Edina, Minn.

A HEALTHY hit

BY WENDY MARX

Recovering addicts find support on Hazelden site

When he gets home from his night job, Jim, a 39-year-old recovering alcoholic and drug user, doesn't even take off his coat before sitting down in front of his computer for his daily dose of "spiritual medicine."

For Jim, an airline mechanic in Dallas who has been sober and drug-free since 1993, a morning isn't complete until he visits the Web site of the Hazelden Foundation (www.hazelden.org), the Center City, Minn.-based nonprofit organization that has been helping people with chemical dependencies and related problems since 1949. "I kind of feel I let someone down and I let myself down if I miss a day," he says. "I can't tell you how great this site is. It gives me the chance to meet other people all over the country who share the same experience I have."

This is self-help for the 1990s, where the cure isn't bottled or injected but transmitted electronically over the Internet. Since January 1996, Hazelden, which has more than 100,000 alumni of its treatment programs nationwide, has been extending an electronic lifeline to people in need. In September, it made its site more interactive, adding chat rooms and electronic commerce so people can order from its 1,000-item catalog of books, videos, audiotapes and other recovery-related products. Recently, it began distributing a biweekly newsletter to 2,000 registered site users. And it began offering free cyber greeting cards, built with

Continued on page 44

the site

HAZELDEN FOUNDATION
www.hazelden.org

Site offers "Thought for the Day," chat rooms and the ability to buy books and other addiction recovery aids.

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A Better Return On Information.™

WANTED: retirees

*Builder seeks residents
for senior communities via Web site*

BY WENDY MARX

Why would a senior community advertise on the Internet? Because the community's developer is expanding rapidly, and more and more seniors — like the rest of the population — are getting wired.

Thirty percent of Americans age 55 and older own a computer, with 25% of them using it to communicate online, according to a 1995 survey by SeniorNet, a San Francisco-based nonprofit organization working to build a community of seniors online.

That community includes Leroy Haslup, 76, who corresponds with his college-age grandchildren via E-mail. Haslup already lives in one of the areas that Senior Campus Living, a private firm that has developed and managed senior communities since 1983, is promoting on the Web (www.sclrc.com). The site,

which went up last April, describes the facilities and includes campus maps and apartment floor plans. Five communities are expected to be available by early this year: Cantonsville (where Haslup lives) and Parkville, Md.; Dearborn, Mich.; Springfield, Va.; and Pinton Falls, N.J. The Baltimore-based company plans to spend \$3 billion building new campuses throughout the U.S. during the next 10 years.

Some 1,500 people have visited Senior Campus Living's site since its inception, but response in terms of leads and sales has been just a trickle, says Tom Mann, director of advertising, publications and graphics. "It's the beginning of the game," Mann says. "We're trying to learn the rules so, hopefully, we'll be up to speed when the Internet becomes a real force."

the site

SENIOR LIVING
www.sclrc.com

Offers preview of
retirement communities.

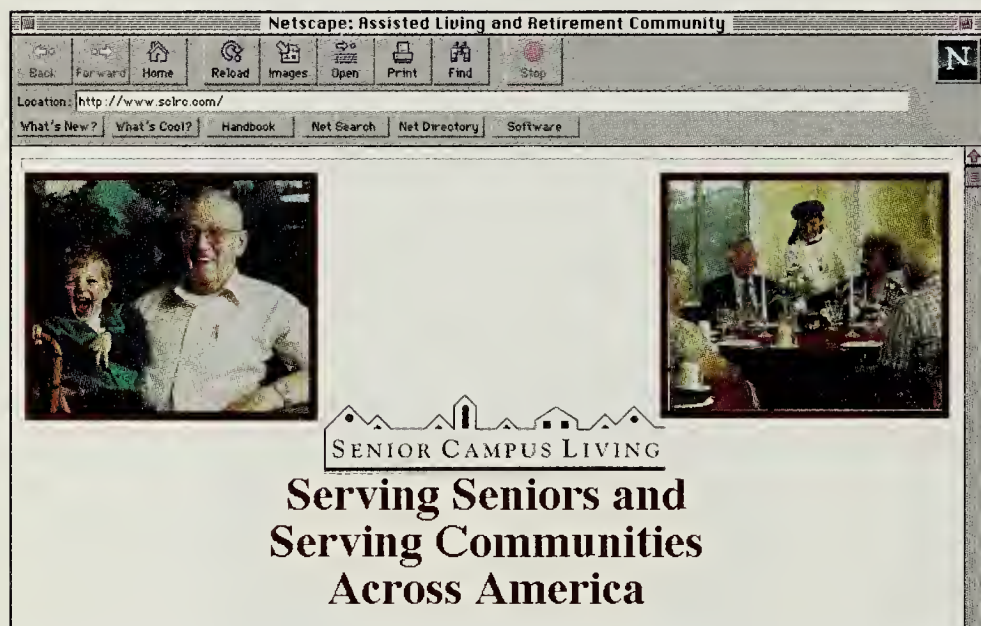
Mann says the company isn't looking for a return on its site investment for a few years. "At a certain point, we'll measure it constantly," he says. "For now, we want to stay on top of where

the technology's going and how consumers are shopping." The site was developed internally, at a cost of less than \$10,000, says systems analyst Song Pak.

Mann says the Web site also appeals to seniors' families, who typically make the housing decisions if the senior needs help with daily care (called assisted living) or nursing care. Senior Campus Living offers both types of facilities, as well as independent apartment living.

Typically located on 100 acres and geared toward the middle class, the facilities offer interconnected buildings housing a bank, beauty shop, convenience store, health club, computer center and other amenities. Some 9,000 senior citizens call them home. "It's a way to just enjoy life, period," Haslup says.

▷ Marx is a freelance writer in Stamford, Conn.



Continued from page 41

Allaire Corp.'s Cold Fusion software, to send to friends and families of people in recovery.

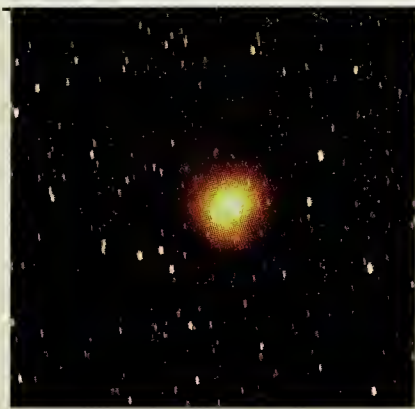
By the end of last year, the site had received an estimated 49,000 visitors, the vast majority of whom had not had contact with any of Hazelden's facilities. That's "great news," says webmaster Linda Peterson. Hazelden doesn't collect demographics on site visitors but believes it's reaching a wider audience than the middle-class population typically served by its treatment centers, which require insurance or private payment.

Hazelden spent about \$50,000 initially to develop its Web site, according to Barbara English-Belanger, vice president of new ventures. The site, created as an outreach rather than a revenue vehicle, has already returned its investment costs from sales at the online bookstore and referrals to its treatment services.

Meanwhile, for many people, the site is a virtual helping hand. As one person said in an E-mail note to the site, "Thanks to your Web site, I have some confidence in moving forward. ... One comes away with the feeling that Hazelden really does care and wants to help."

IT'S ALL IN THE stars

BY STEVE ALEXANDER



NASA site offers 400 views for space explorers

the site

**NASA
photojournal.
jpl.nasa.gov**

A photo archive searchable by voyage or place, this site links to a site featuring 3-D animations of scientific data, such as computer-generated flights over Mars or Venus.

It's a stormy day on Jupiter. White flecks of what appear to be thunderheads — the type of clouds that create thunderstorms on Earth — are swirling around the edges of Jupiter's Great Red Spot. The Red Spot, a 300-year-old hurricane-like storm with winds of 250 miles per hour, is so big the entire Earth could be dropped inside of it.

Welcome to space in cyberspace, where high-quality photos of unearthly beauty take the place of textbooks and newspaper reports. The dramatic view of Jupiter, taken last June 26, is one of the nearly 400 images on NASA's Planetary Photojournal Web site. The site is expected to help reduce the 300 requests per week that a two-person public information office receives.

"We've organized it so you can do searches for all photos returned from a particular spacecraft or for a specific target like Jupiter," says Myche McAuley, a technical staff member at Jet Propulsion Laboratory's science data processing systems section in Pasadena, Calif.

THE price IS RIGHT

Donated services make Web site a smart venture for Goodwill Industries BY WILLIAM SPAIN

If cybersurfing and 50-cent shirts appear an unlikely combination, you haven't asked webmaster Scott Mearns about Goodwill Industries International, Inc.'s Web site.

Public awareness is as crucial for a nonprofit as for any other organization, and Goodwill is leveraging the Web to promote itself and provide easy access to information.

Looking for a Goodwill drop box where you can donate last year's fashions or that couch that won't fit up the stairs? Try the clickable map of the U.S. and Canada to find the nearest donation center or retail outlet — it's one of the site's most popular features, Mearns says.

Curious about Goodwill's history and mission to provide job training and placement for disabled people and others with barriers to employment? You'll find that on the site, too, along with information on how to locate and support your local Goodwill chapter. Each chapter operates independently under a national umbrella; about 20 of the 200-plus chapters internationally have their own home pages so far. Goodwill Industries of Kentucky in Louisville is one of them.

the site

**GOODWILL
www.goodwill.org**

Offers information and donation drop-box locations for the job training and placement agency best known for collecting and selling clothes and home goods.

"We constructed our Web page after visiting everybody else's sites," says Oliver Hofmann, the chapter's development director. His site offers information on Goodwill locations, volunteer opportunities and even an approximate price list for

goods in local Goodwill stores. The services to build and maintain the site were donated by friends and relatives of the staff.

Future plans for the corporate site include adding RealAudio and developing a private section where Goodwill members can share information, Mearns says.

Goodwill may also do some online promotion with CEO and President Fred Grandy, a former GOP congressman from Iowa and one-time crew member of TV's *The Love Boat*.

Of course, for that, they may need to go back to Gopher.



▷ Spain is a freelance writer in Chicago.

VESSEL FOR evangelism

BY CANDEE WILDE

Lutheran Church spreads its mission on the Web and uses the medium for church business, too

For evangelical Christians whose fundamental doctrine requires them to expose as many people as possible to their beliefs, the Internet is truly a godsend.

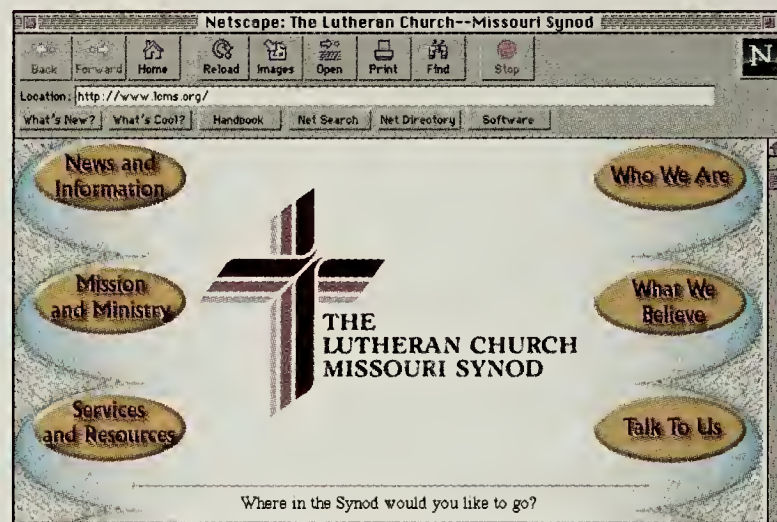
The primary reason the Lutheran Church – Missouri Synod put up a Web site a year ago was to reach outsiders — those who aren't familiar with the Lutheran Church, says Joseph D. Sullivan, mission partnership and involvement Internet application coordinator.

The Missouri Synod, based in St. Louis, is a branch of the Lutheran Church, which has 6,300 congregations and 2.6 million members in 50 nations. Its Web site (www.lcms.org) receives more than 1,500 hits a day — though the church isn't tracking from whom — and it is also used by the organization's professional workers, congregations and

more than 2,100 schools to communicate about church business.

But the primary purpose of the Web site is to spread the Gospel.

"Who We Are" and "What We Believe" buttons on the home page bring up information that provides an introduction to the Lutheran faith. "The home page also makes Bible studies available for people in remote areas or for people who travel," says Tom Butz, assistant to the president, business administration.



Sullivan says he expects more churches to offer Web sites as they allocate more resources to technology. Already, more than 3,000 Christian churches in 75 denominations have Web sites, and that number increases weekly, according to Christianity Today, Inc. (www.christianity.net).

Technology has become so important to the Lutheran Church – Missouri Synod that the group has a staff of 50 IS employees nationwide and a 10-year strategic plan for IT. As for the Internet, it is slowly replacing the church's private "Luthernet" application, which will be phased out over the next year or two, Butz says.

▷ Wilde is a freelance writer in Easton, Conn.

the site

LUTHERAN CHURCH
www.lcms.org

Provides introduction to Lutheran faith, daily prayers, database of radio broadcasts, links to churches worldwide. Intranet replaces proprietary network for church business.

FINE arts

BY WILLIAM SPAIN

Artists embrace Web medium as outreach tool

"Cognisculpture" might not have made it to the Louvre — yet — but aficionados can grapple with it at www.artswire.org. With links to everything from home pages on painting, photography, sculpture, music and dance to news about the latest gallery openings — and a private forum for Arts Wire board meetings and

grant application reviews — the Web site facilitates communication among artists, arts organizations and the public.

Its greatest beneficiary, according to Dan Martin, director of the master of arts management program at Carnegie Mellon University in Pittsburgh, may be the local arts organizations.

"They see it as giving them a competitive edge," he says. "Arts Wire and the Web can give them access to people they wouldn't otherwise have."



A NEW crop

*Farmers mix technology
and tradition to increase profitability*

BY CANDEE WILDE

Daryl Drake farms 900 acres near Brookville, Ind., that have been in his family for three generations. He lives in the house his grandfather built in 1920 and still owns the tractor his grandfather purchased in 1936 to replace plow horses. Drake also owns a computer that provides his link to the Internet.

"The greatest advances in farming 'technology' first came with mechanization. Next was biological [advancement] that led to higher yielding varieties [of crops] and chemical weed control. Now, there are electronic advances," says Drake, who has used a computer to help run his farm since 1979. These days, sending and receiving E-mail and downloading information from the Internet are the PC's primary functions. "Farming is like any other business: accurate, up-to-date information is critical," Drake says.

One company that hopes to leverage farmers' use of technology is Consolidated Grain and Barge Co. (CGB), which markets and transports farmers' bulk crops. Its Web site (www.cgb.com), launched in June, allows farmers to track prices of grain, corn and soybeans, for example, and access information about local harvests. The company hopes that sharing this information, which used to be closely guarded, will sow goodwill with farmers.

"Now, we want to take information to our cus-

tomers on a trust basis so we can change the adversarial relationship that existed in the past," explains Tim Wesbey, CGB's divisional general manager. The Louisiana-based company operates more than 65 grain facilities in the U.S.

the site

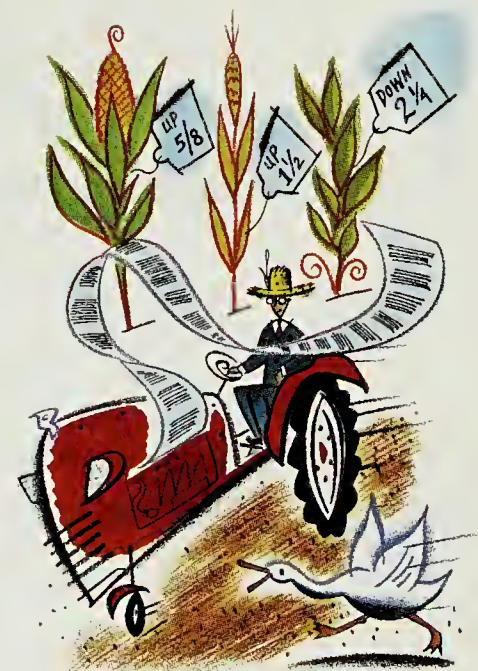
CONSOLIDATED GRAIN www.cgb.com

Tracks prices of grain and other crops; provides updates on weather conditions, transportation and political events around the world.

Drake says he isn't sure a Web site can build trust, but he does value the information he finds on CGB's site. "CGB has included both futures and cash bids on their site, which I will visit two or three times weekly — every day if I didn't have other information retrieval methods," he says.

Farmers have always needed current information about prices, weather and transportation conditions and political happenings, and CGB traditionally provided it by phone or newsletter, Wesbey says. But the Internet allows farmers to tune in anytime.

As more family farms are consolidated and the number of farmers continues to decline, computer networks are helping breathe new life into the farming business, Drake says. "With fewer farmers, there are fewer suppliers, less agricultural radio and even fewer government offices," Drake says. "Often, business is done electronically today, instead of person to person."



And for artists, who often become very specialized and may work only in one medium, Arts Wire has assigned itself a broader purview. "One of the hallmarks is that we are not specific-discipline-oriented," says Arts Wire director Joe Matuzak.

Key to success is improving the Internet skills of all involved. "We didn't aim ourselves at the technically savvy artists. A lot of

our time has been spent hand-holding people through this process."

A program of the New York Foundation for the Arts, Arts Wire was conceived in the late 1980s to improve communication in the arts community via the then-nascent online medium. It debuted in 1993.

It is funded by corporate subscribers and various grants, and some income is derived from providing members with inexpensive Web design services, conferences and workshops, Matuzak says. Server space is provided free by Martin's master's program at Carnegie Mellon. The site also functions as an applied research project for arts management students there.

the site

N.Y. FOUNDATION FOR THE ARTS www.artswire.org

Provides information ranging from local dance performance schedules to grants available to artists.

Build or Buy?

WHETHER YOU
YOUR STAFF'S

When Marriott International, Inc. decided to go on the Web, it didn't think twice about turning to contractors to build its site.

Why not do it in-house? "We try to look for core competencies, and managing a Web site is not one of them," says Bill Schallenberg, manager of Internet services.

When it comes to the development, operation and maintenance of Web sites, information managers and their business management cohorts at some Premier 100 organizations are finding that outsourcing is the way to go. Like other technologies before it, the Internet creates a build/buy conundrum; whether to do it yourself or pay someone else to depends on how much control you want to have, where your staff's strengths are and how much you want to spend.

"You can do it all yourself, but it's getting pretty complicated," says Sherry Sumits, an outsourcing analyst at Input, a Mountain View, Calif.-based market research firm. "The more value that's involved, the more risk you have of spending more in-house rather than leveraging economies of scale."

Perhaps more than any other technological outsourcing project in the past, today's Web site development entails cross-disciplinary skills, such as creative design, graphics and writing. Furthermore, the requisite computer skills such as HTML, Java and Common Gateway Interface (CGI) programming are new, and when legacy links are involved, they can get a little dicey.

Then there's the challenge of laying out information in a versatile, electronic page-linking format, which allows for approaches not possible, or even thought of, on two-dimensional paper.

FILLING THE VOID

Stepping in to meet these challenges are Web site "boutiques," whose only line of business is to create sites. There are also traditional ad agencies, traditional outsourcers and systems integrators, for when the Web site requires links to a finely tuned back end. As Forrester Research, Inc. analyst Josh Bernoff notes, if your Web site is part of a larger



business-process remapping, "you don't hand it all over to [site developer] Digital Planet and ask them to re-engineer your business."

Certainly, plenty of companies are buying in. Estimates of market size vary wildly. Forrester predicts a \$10 billion market in site design by the year 2000. Input doubles the ante for that time frame, estimating a \$20 billion market that includes Web site hosting and back-end integration.

A Web contract can cost from \$1,000 to \$100,000, depending on site sophistication, Input's Sumits notes. Yearly maintenance might range from \$10,000 to \$50,000, she says. But with all the skills needed to set up and maintain a site, the price can be worth it.

Schallenberg won't say how much money Marriott is spending on its Web contractors — all five of them. It's using Waldorf, Md.-based Design Corp. for page creation; Martin Interactive, a division of ad agency The Martin Agency, Inc., for page design and page links; UUNet Technologies,

CREATE AND MANAGE YOUR WEB SITE OR SEEK OUTSIDE HELP DEPENDS ON STRENGTHS, THE CONTROL YOU WANT AND YOUR BUDGET

BY MARK HALPER

MANY OUTS

Marriott is outsourcing many parts of its Web sites

Function	Outsourcer
Web page design	Martin Interactive
Web page creation	Design Corp.
Site hosting	UUNet Technologies
Site traffic analysis	AC Nielsen I/Pro
Electronic commerce	The Hotel Industry and Switching Co.

Inc. for Web site hosting; AC Nielsen I/Pro for site traffic analysis; and The Hotel Industry and Switching Co. for electronic commerce — processing room reservations and payments.

Though Schallenberg says Marriott factors in core competencies when deciding whether to do a project in-house, that's not always the deciding factor. Strategists at Progressive Insurance Co. in Mayfield, Ohio, decided to build their own Web site because they wanted control, they wanted to learn and they wanted to make changes quickly at the right time, says IS manager Ryan Conlon. The site has been up since the spring of 1995.

"We decided to do it on our own to force ourselves to learn this new technology," Conlon says. "If someone else does it, it's hard to understand the real challenges: what works, what doesn't work, what's hard, what's easy, and what the real capabilities are."

As a rapidly growing auto insurance company vying for market share against the likes of Allstate Insurance Co., Nationwide Mutual Insurance Co.

and State Farm Mutual Automobile Insurance Co., Progressive has some ambitious Internet-related goals that include electronic commerce.

Certainly, Conlon's has been a learning experience. For instance, the company has learned to limit the size of images. "We've learned that people will wait about 17 seconds, and then they'll say, 'The hell with this' and go on to another site," he says.

KEEPING OPTIONS OPEN

Of course, nothing has to be forever. The conventional wisdom in data center outsourcing that it's difficult to terminate a deal or change outsourcers doesn't ring true for Web development.

McDonald's Corp. recently decided to bring page development in-house, ending a year-long relationship with San Francisco-based Organic Online. The site offers information about the fast food company, goods to buy and some interactive games for children. "When we originally started, the Internet was fairly new," recalls McDonald's webmaster Judy Newby. "We didn't have a lot of experience."

In fact, the limiting factor in taking on development itself was not the technical challenge, but the chore of managing production schedules across departments. "The programming is the least of it," says Newby, who, like many webmasters, points out that HTML programming is relatively easy, and that plenty of tools circumvent HTML.

Aetna, Inc. also took page development back from its original designer, Proxicom, Inc. — but it doesn't rule out going back to an outsourcer. Creed Terry, an Aetna vice president, says the company will seek out a contractor for an upcoming major redesign.

There's always the mercurial question of where the Web is heading, too. "If the Web should collapse, we don't want to be saddled with a huge overhead," Marriott's Schallenberg says.

▷ HALPER IS A FREELANCE WRITER IN SAN FRANCISCO.



Back



Forward



Home



Edit



Reload



Images



Open



Print



Find



Stop



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	SUITE SPOT	BACK OFFICE	LOTUS NOTES
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Standards-Based Distributed Search & Indexing	Yes	No	Only Thru Replication
Server-Based Java & JavaScript	Yes	No	No
Native Support For Oracle, Sybase, Informix, & ODBC	Yes	ODBC Only	ODBC Only
Cost w/1,000 Clients	\$59,300	\$183,386	\$83,383

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NETSCAPE

Beyond html

Sophisticated Web sites require heavy-duty tools. The good news: You may already have them.

By Suruchi Mohan

Creating a basic Web presence with gobs of informational text and flashy eye candy is easy — that's why there are so many alluring sites in the 'net's naked city.

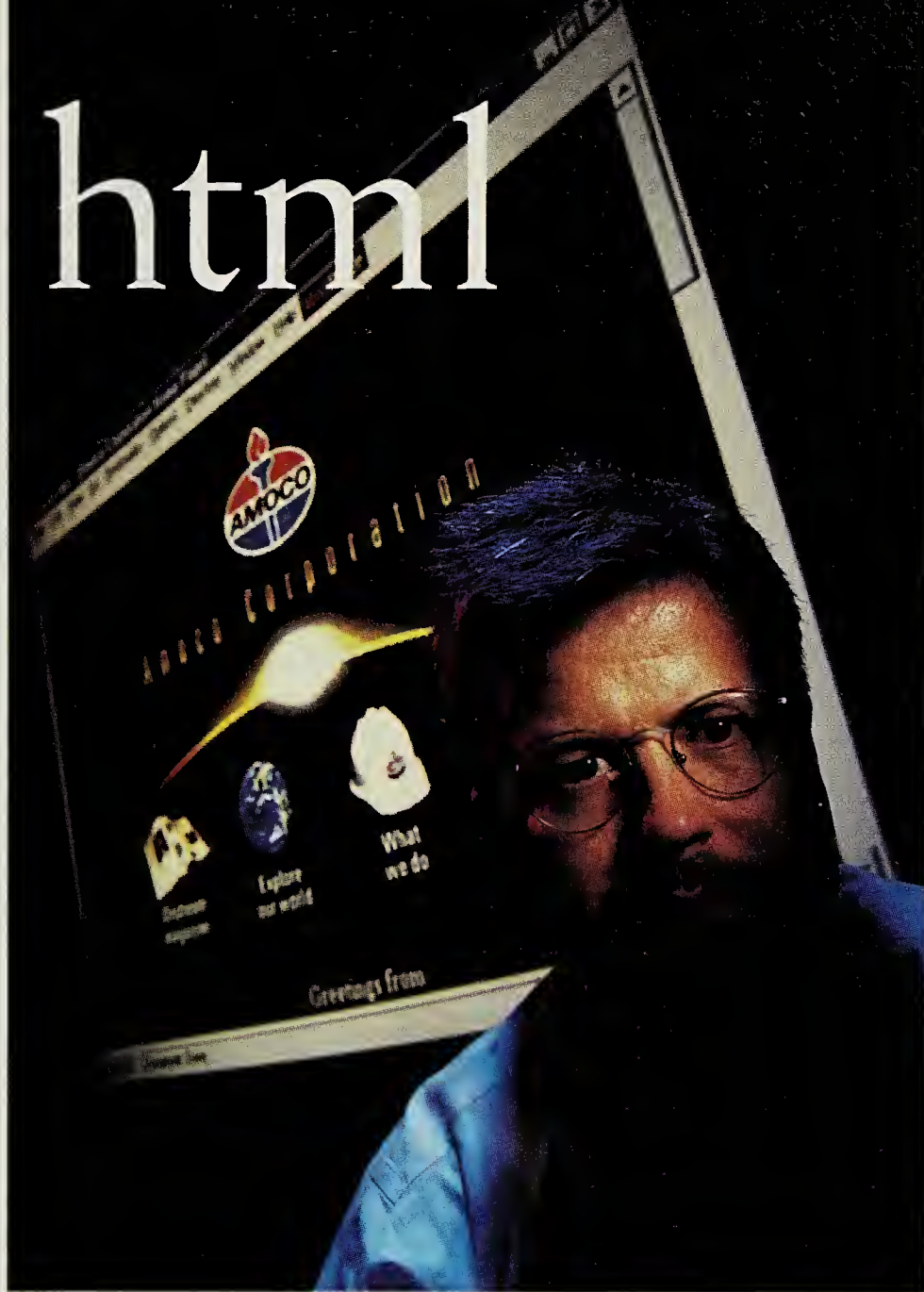
However, a good many Premier 100 organizations are heeding a higher calling. They are transforming product catalogs into full-service order-entry and fulfillment systems; using Internet mail to catalyze customer service and support; or providing customers and suppliers with entree into previously forbidden inventory, production and sales and marketing systems via private intranets.

The good news is, many organizations already have experience with the tools needed to get the job done. "The beauty of the [Web] is that it leverages existing databases, existing tools, existing operating systems and existing hardware technologies," says Richard Finkelstein, president of Performance Computing, Inc. in Chicago.

Chuck Campbell, senior computer analyst and a webmaster for Amoco Corp., agrees. "Right now, [companies are] repurposing existing tools."

For instance, page authoring, image rendering and manipulation aids are coming from Adobe Systems, Inc. and Microsoft Corp. For underlying logic, application developers are turning to Web-enabled visual programming tools from companies such as Microsoft or to Web-spawned startups such as Bluestone, Inc. and Netscape Communications Corp. They are also using proven Internet derived shareware products and languages such as C, C++, Perl and CGI, the latter two of which were developed for the Internet.

Using a sprinkling of these is Moses Haile, a systems developer at National Personnel Associates Cooperative, Inc. in Kentwood, Mich. Composed of nearly 400 placement firms, the organization maintains a database of job seekers and job openings. Users go through a Web browser to a Web server — WebSite Professional from O'Reilly & Associates, Inc. — that



"Right now, [companies are] repurposing existing tools." — Chuck Campbell, senior computer analyst and webmaster, Amoco

also hosts a Microsoft Access database. Haile used CGI and WinCGI scripting for database access.

Black & Veatch, an engineering construction company based in Kansas City, Mo., took a different approach. Using a new breed of tool, it built a construction management application that allows managers and clients to check the status of projects (see story page 25).

The architecture is typical three-tier client/server enabled for the Web. At the browser layer, managers just run a predefined report, which goes to the Web server. The server, using Bluestone's Sapphire/Web, generates an SQL query that goes to the database for the information requested. The Web server can also generate Boolean queries, which were developed using C.

Why a product from upstart Bluestone? Sapphire/Web runs on the server, is platform independent and required minimal developer training, B&V webmaster Duane Downtain says.

But Web development isn't always predictable, as Loyola Marymount University in Los Angeles found

out. A student-built site offering general university information had to be revamped by the school's IS department because Loyola Marymount's organizational interests were not properly represented, says Bonnie Weinstein, Web

editor for Windows 95 and NT 4.0.

Free software has helped other companies, too. Wendel Bordelon, directory administration analyst at Amoco, created a Web site to monitor the company's Hewlett-Packard Co.

the Web, says Frank McElligott, a business systems consultant at the Benton Harbor, Mich., company.

Down the road for many Premier 100 organizations is Java, Sun Microsystems, Inc.'s much hyped cross-platform development language. It is still a reach for many developers, except for the most experienced C++ programmers. "We've stayed away because we have a 16 bit [environment] and most Java doesn't support it," says B&V's Downtain. "We're waiting for a killer Java application."

Wells Fargo Bank in San Francisco did not use Java to create its Internet banking service because of concerns about its maturity and security. "We don't want to use anything that people are skeptical about," says Alan Stark, vice president of online financial services.

Still, almost everyone is intrigued by Java development, even if they are worried by its complexity. "It will be a while before Java hits Web sites," says Mitch Kramer, consulting editor of application development practice at Patricia Seybold Group in Boston.

▷ MOHAN IS A FREELANCE WRITER IN LOS ALTOS, CALIF



Loyola's Bonnie Weinstein revamped the university's Web site using Internet Assistant and shareware Homesite X.

OpenMail servers. He used public domain Web software from Conseil Européen pour la Recherche Nucleaire (CERN), the European Laboratory for Particle Physics, and built pages using native Unix commands.

As the site has grown, Bordelon has moved to commercial products, such as Microsoft's Internet Assistant and Powerpoint for HTML conversion and graphics, respectively, and Visio Corp.'s technical drawing package. Why the change? Service, support and bug fixes are much easier to come by, Amoco's Campbell explains.

At least partly for this reason, Whirlpool Corp. used Adobe Acrobat and Photoshop in preparing images for

development manager.

To upgrade the site's look, feel, content and navigation, Weinstein selected Microsoft's Internet Assistant — an add-in to Microsoft Word — and shareware, including Homesite X — an HTML

The trouble with ISPs — and how to avoid it

If you've had trouble accessing your Internet service provider (ISP) or had problems with the speed and quality of the service, or the knowledge of the technical support staff, take heart. You're not alone. Many Premier 100 organizations suffer the same fate.

"We built the Internet [application] based on grants, then paid \$10,000 for Internet access, and now [we're paying] \$300,000 a year," says Mike Strizich, director of student information services at the University of California in San Francisco. Even changing ISPs, he says, "we're having packets dropped all over the place. The bandwidth isn't there that we're used to."

Bill Donkin took the time to evaluate several ISPs before hiring one. "We want them to own the routers and the line and charge us a flat fee," says Donkin, director of technical services and network operations at Pep Boys — Manny, Moe & Jack, an automotive parts retailer based in Philadelphia. "We don't want to worry about the maintenance of the router they put here for us. When they change routers, we don't want to be involved."

For peace of mind (and contingency planning), Pep Boys plans to hire a backup ISP. "I want to make sure people who use the Internet for work don't get disrupted service," Donkin says.

Once burned is twice prepared. Here are some things to consider when evaluating ISPs, from our Premier 100 organizations.

COSTS. Don't leap from one ISP to another purely for price reasons. "Pricing is based more on competitive than financial prudence. [Some ISPs] are charging too little," which affects the quality of service, says Don Hutchinson, an independent consultant in San Carlos, Calif.

TEMPORAL AND GEOGRAPHIC AVAILABILITY. Does the ISP offer 24-hour service in the localities you need to link?

WEB SAVVY. Is the ISP's technology dated? Can it handle peak connectivity loads? Does it understand the intricacies of your environment?

VIABILITY. Does the ISP have sustainable business to get it through bad times?

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Web Wunderkind



By Leslie Goff

Facing high market demand for a limited supply of people with HTML, Java and networking skills, corporate IS departments are training their sights on retaining their hard-earned online talent. Here, managers at four Premier 100 organizations (see box at right) share how they are striving to create enlightened workplaces where these professionals can thrive.

CW: How are you hanging on to your Web staffers?

GIDEON SASSON: [Schwab is] trying to bring developers into a strong partnership with the business, where they actually feel that they own the site. It's very difficult to attract really talented C++ programmers because of our proximity to Silicon Valley. We're considered corporate America, and [that] scares away a lot of talented

They're savvy, creative and in hot demand. Here's what it takes to keep webmasters happy — and on the company payroll.

programmers. We're fortunate not to have that kind of culture ... sometimes it's a challenge for people to adjust to the idea that they own everything being developed.

That partnership makes it possible for us to maintain our staff.

MARY CORTINA: Our conservation mission [at the National Wildlife Federation], combined with the IS perspective, makes it really attractive for Web people to be here and stay here. ... We're not going to be paying top dollar, because we're nonprofit. As trite as it sounds, having people understand how their work fits into the organization and the world at large — you can't substitute compensation for that. So we rely on that quite a bit, because it's certainly not the money that's going to keep people here.

SCOTT DINSDALE: [At BMG Entertainment], we tend to look at Web activities as two separate activities. One is the tech side, which involves managing the site, knowing what's coming down the pike — a traditional IS project management role. We look for an experienced IS person who is interested in the Web for the moment, but who is mainly interested in IS. The other side is the creative/marketing side.

We don't force an IS person into that role. We look for someone interested in a career in marketing who is computer-aware but not IS-aware. So each side has a career track that joins not just to the Web, but to specific segments within the company that offer a variety of career paths.

WENDY BELSKY: [At Chase Manhattan] we have been very public about saying that this technology is going to be a real enabler for our business, and we continue to make significant investments in the technology. That positions us as a world leader in that respect, and people want to work for a world leader where they know the investments will be made.

CW: How much turnover has your Web staff experienced?

DINSDALE: Our group has been together about 18 months, and we have our first turnover coming

up [on the marketing side]. On the IS side, we've had no turnover. With our outsourcer, it was a rocky ride for the first six months because of turnover on their side. It seems more stable now.

CORTINA: Our first "webster" left to become a teacher. She was the one who really set up the collaborative framework we have for developing the Web site — she was a real motivator and had a lot of creative ideas about getting people to work together. So we looked for these same qualities again, because we don't have the resources to hire a 20-person dedicated team. In general, people stay here a long time. If you stay five years, you can take a 10-week paid sabbatical. But I can't imagine a webster staying here that long, just because the technology changes so fast.

SASSON: No one from our team has left yet. We had one case of a person joining the group and not making it — it was a new employee, and when he came to us, he had another job offer in the works that was closer to his house, and he left to take that.

CW: What is the work environment for your Web team like?

SASSON: In IS, every organization under the CIO defines its own environment. In the electronic trading organization, we have flexible hours, and staff can arrange their own schedules with their manager. It's quite normal to work from home two days or to work four very long days and take the fifth off. Schwab is a casually dressed company — in that respect, everyone enjoys the same freedom.

BELSKY: We emphasize flex work arrangements. Particularly in some of these jobs, people can go home early for dinner with their families, and then log on at night from home. They can set up formal or informal arrangements with their managers.

CORTINA: We're in Tyson's Corner, in Vienna, Va., and we have 50 acres of land with nature trails and a backyard habitat and demonstration garden. In the evenings [typically people work till about 7 p.m.] we have deer out here eating pears off the pear trees.

CW: What special considerations or perks do your Web staffers enjoy?

DINSDALE: The only thing different from anyone else is the workstation issue. They all have two workstations. One is usually RISC-based, like a Sun, so theirs are much spiffier than anyone else's. But that's just one piece of ego that goes with the job.

CW: What other factors contribute to retention?

BELSKY: We have a number of established forums [our Web people] can become members of, like a technology leadership corps, and a global LAN community that provides an opportunity for people to understand developing on the Internet and intranet. We also have Centers of Excellence for the Internet and intranet. The people chosen for them have demonstrated a high level of expertise, and being a member of any of these forums is an opportunity to learn and develop.

SASSON: There's a high you can get from working at a high-tech company like Microsoft. Then there's another high that comes from end users actually giving you feedback on features they are using that are yours. Here, we're much closer to the user. ... The scale of the opportunity to make an impact on people who are dealing with what is often the second-most important thing in their lives — their life savings — is a huge factor. It's possible, within two months of coming here, to make a huge impact on the site. And usage is increasing so rapidly. That in itself is a high.

CORTINA: People who come here to work on the Web want to work for us because of our environmental and conservation work, but also because we are trying to use this new technology to change the world. Our electronic mission is at the heart of what we do. I think if [the Web team] were just an appendage of a company, it would be very hard to keep people, but with our overall mission, it's hard for people to walk away.

▷ GOFF IS A FREELANCE WRITER IN NEW YORK.

The Panelists and Their Teams

GIDEON SASSON: *Senior vice president, electronic brokerage technology*

Charles Schwab & Co.,
San Francisco

Site: www.schwab.com

Staff: 10 developers, four publishers/HTML programmers and a small quality-assurance staff working on the front-end applications; more than 100 C programmers work on the back-end systems.

MARY CORTINA: *Acting director, information technology*

National Wildlife Federation, a nonprofit environmental conservation organization in Vienna, Va.

Site: www.nwf.org

Staff: A "webster" (a.k.a. webmaster), who coordinates a collaborative effort between IS and each department and enables volunteers from each department to post interactive content to the site; plus an intern, who assists the webster.

SCOTT DINSDALE: *Senior vice president, information systems*
BMG Entertainment, New York

Site: www.bmg.com

Staff: Three full-time and two part-time employees, including a marketing project leader and an IS project leader.

WENDY BELSKY: *Senior vice president, human resources, Information Technology and Operations group*

The Chase Manhattan Bank,
New York

Site: www.chase.com

Staff: A large distributed staff programs and maintains the site; the business units provide content.

The Premier 100

Company/Organization	Industry	Company Revenue
A & M Records	Entertainment	NA
Advanced Marine Enterprises, Inc.	Maritime Engineering	NA
Alamo Rent A Car, Inc.	Transportation	\$1.4B
Alaska Airlines, Inc.	Air Transportation	\$1.1B
Allegany County (Md.) Human Resources Development Commission	Government	NA
Aluminum Company of America*	Metal & Glass Manufacturing	\$12.5B
Amazon.com	Retail	NA
AMP, Inc.	Electronics	\$5.2B
APL Ltd.	Transportation	\$2.9B
Armstrong World Industries	Interior Furnishings	\$2.1B
Arthur D. Little, Inc.	Business Services	\$514M
Ashland, Inc.	Oil & Gas	\$12.2B
Auer Precision Co.	Electronics	NA
BankAmerica Corp.*	Financial Services	\$12.5B ¹
Barnett Banks, Inc.	Financial Services	\$2.5B
Battelle Pacific Northwest National Laboratory*	Research	\$539M ²
Bechtel Corp.*	Engineering & Construction	NA
Beth Israel Deaconess Medical Ctr., Nuclear Medicine Dept.	Health Care	\$436.1M
Black & Veatch**	Engineering	\$1.1B
Booz, Allen & Hamilton, Inc.*	Management Consulting	\$1B ³
Caliber System, Inc.	Transportation	\$2.5B
Cambridge, City of	Government	NA
C. H. Robinson Co.	Distribution	NA
CH2M Hill, Inc.*	Engineering	NA
Charles Schwab Corp.	Financial Services	\$1.4B

All companies selected for Internet applications unless followed by *(intranet) or **(combination Internet/intranet). ¹Income ²Business volume ³Estimate



Company URL

Premier 100 Application

amrecords.com

Interactive site with video, audio, news and contests. Fans get up-to-date information on clients represented by A&M. Improves name recognition and Internet presence for company.

www.advmar.com

Ship design and advertising. Showcases company, garners international exposure and provides information on shipbuilding.

www.freeways.com

Online car rental reservations for customer convenience and increased revenue. Development cost: \$100,000.

www.alaska-air.com

Web site used for direct ticket purchases, reservations and flight information. Customer service realized through ease and convenience of information access and improved call-wait times.

NA

Client tracking and communications across various county agencies. Provides file sharing and E-mail capabilities. Time savings and paper savings. Development cost: \$60,000.

www.alcoa.com

Corporate communications and news reports. Money saved by automated distribution of information and increased communications. Annual cost savings: \$50,000.

www.amazon.com

Online bookstore. Allows customers to search by title, author, subject or keyword, pay by credit card and have items shipped to them.

connect.amp.com

Information and electronic commerce. Allows access to current information on 75,000+ products, including application and product specs. Cost savings: \$165,000. Development cost: \$1.5M.

www.apl.com

Provides tracking information on shipments. Benefits include paperless environment and better customer service. Development cost: \$100,000 to \$150,000.

www.armstrong.com

Customer service and sales. Provides real-time access to logistics information. Development cost: \$30,000.

www.arthurdlittle.com

Marketing of company services. Increases customer contact and global accessibility. Revenue benefits: \$600,000. Development cost: \$30,000.

www.ashland.com

Store locator provides easy access for customers searching for store locations.

NA

Engineering drawings transferred to customers via Internet. Improves customer communications with increased data availability and international communications. Development cost: \$1,200.

www.bankamerica.com

Knowledge-based technical support for PC problems. Development cost: \$20,000.

www.barnett.com

Information for tourists and people relocating to Florida. Improves customer service and generates new accounts.

www.pnl.gov

Provides better access to financial reports and improves productivity, speed and control. Employees select from preformatted reports and create their own subscription lists. Annual savings: \$350,000.

www.bechtel.com

Access to engineering documents and information. Reduces paper costs and increases speed of information transfer. Development cost: \$500,000.

www.bidmc.harvard.edu

Clinical information for referring physicians. Provides instant information access, international distribution and inexpensive way to dispense information. Development cost: \$1,000.

www.bv.com

Construction management system. Aids in tracking construction information across the U.S. Annual cost savings: \$1M.

www.bah.com

Access to collective knowledge and corporate communications. Delivers uniform product information and helps solve staffing issues.

www.calibersys.com

Package tracking, customer service. Improves customer service and provides cost savings. Development cost: \$120,000.

www.ci.cambridge.ma.us

Electronic city hall. Provides easy access to government, community officials, information and resources. Development cost: \$10,000.

www.chrobinson.com

Shipment tracking service. Provides better customer service and reduces phone costs and personnel time. Development cost: \$50,000.

www.ch2m.com

Global staffing tool for project teams. Able to find skilled staff and reduces time and effort to complete projects. Development cost: \$30,000.

www.schwab.com

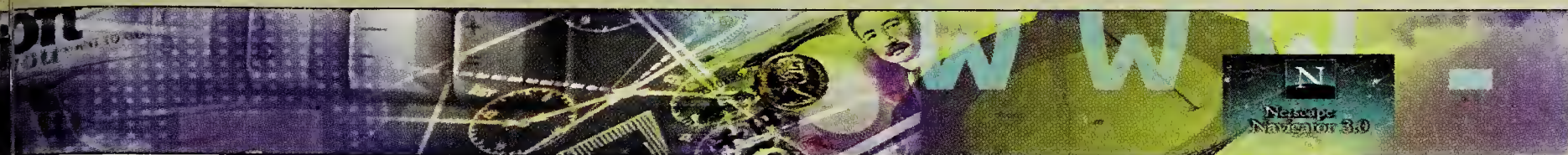
Online trading, marketing and electronic commerce. Reduces employee costs, improves customer service and generates customer savings.

NA = Not available. Some Premier 100 organizations do not have public Web sites and are honored for their Internet/intranet applications.

The Premier 100

Company/Organization	Industry	Company Revenue
City of Austin Electric Utility Department*	Utility	\$500M+
Columbia/HCA Healthcare Corp.	Health Care	\$17.7B
Consolidated Grain and Barge Co.	Wholesale	\$1.9B
Coopers & Lybrand L.L.P.	Business Services	NA
CUC International, Inc.	Membership Services	\$1.4B
DHL Airways, Inc.	Transportation	\$5B ³
Dreyfus Corp., The	Financial Services	NA
Encyclopaedia Britannica, Inc.	Publishing	\$407M
Environmental Protection Agency	Government	NA
Equitable Cos., The	Insurance	\$7.3B
Federal Express Corp.	Transportation	\$10.3B
First Union Corp.	Financial Services	\$10.6B
Florida Power & Light Co.	Utility	\$5.5B
Gas Research Institute	Research	NA
Geisinger Health System*	Health Care	NA
GenCorp**	Diversified Manufacturing	\$1.8B
Gould Paper Corp.*	Wholesale	NA
Harris Corp.	Electronics	\$3.4B
Hastings Entertainment, Inc.*	Retail	NA
Hazelden Foundation	Nonprofit	NA
HBO & Co.	Entertainment	\$495.6M
Heritage Environmental Services, Inc.	Business Services	\$100M+
Holiday Inns, Inc.	Hospitality	NA
Indianapolis VA Medical Center*	Health Care	NA
IntelliChoice, Inc.	Automotive	NA

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Company URL

Premier 100 Application

www.electric.austin.tx.us

Utility planning and system analysis. Immediate access to information reduces labor costs and increases productivity. Cost benefit: \$10,000 to \$20,000. Development cost: \$30,000.

www.columbia.net

Site serves as marketing, public relations and resource tool. Generates new revenue and clients. Site includes healthy recipes, encyclopedia of health information and listing of more than 500 facilities.

www.cgb.com

Provides agricultural information, including grain prices, and improves communication and relationship with farmers. Development cost: \$5,000.

www.colybrand.com

Tax News Network (www.taxnews.com) provides most current tax information. Enhances company recognition and expands consumer base.

www.cuc.com

Shoppers Advantage, online shopping service. Reduces customer service calls and telephony costs. Revenue benefits: \$500,000. Development cost: \$300,000.

www.dhl.com

Package tracking service. Provides shipping information to improve customer service.

www.dreyfus.com

Account and sales information. Customers set up new accounts, track status and access daily rates and prices. Improves ease of transactions and security. Development cost: \$127,500.

www.eb.com

Customer service and online encyclopedia. Provides easy access to current information and links to other related sites.

www.epa.gov

Provides easy access to up-to-date EPA information for public.

www.equitable.com

Interactive site with financial simulation game applet focused on financial fitness to encourage clients to think about lifestyle strategies. Focuses on needs, rather than disclosure of financial figures.

www.fedex.com

Package tracking service. Customers can ship and track own packages, leading to reduced communication costs and labor costs.

www.firstunion.com

Online banking service allows access to account information and transactions. Reduces telephony costs.

www.fpl.com

Customer service. Customers access history of consumption and determination of last bill. Savings through decreased volume of calls. Development cost: \$20,000.

www.gri.org

Provides consumers with fast and easy access to current technical information about natural gas. Annual cost savings: \$2M. Development cost: \$1.5M.

www.geisinger.edu

Distribution of information. Provides real-time accurate and consistent information while reducing patient care and paper costs. Cost benefit: \$25,000. Development cost: \$30,000.

rw.gencorp.com

Supports engineering, quality and manufacturing, allowing staffers at remote locations to view documents, videoconference via desktops and perform design reviews. Increases productivity.

www.gouldpaper.com

Web site for sales and customer service. Reduces call volume and increases sales with greater sales-force involvement. Development cost: \$100,000.

www.harris.com

Product advertising and lead generation for sales forces. Customer access to current information on new products and spare parts.

www.hastings-ent.com

DataDoc Online. Reflects daily changes on video rentals, books, music and software across 115 retail locations. Saves IS time and improves data accessibility and accuracy. Annual savings: \$150,000+.

www.hazelden.org

Public service and electronic commerce. Offers inspiration, information and products to people who have, or want information on, addictions.

www.hbo.com

Original comedy and drama programs developed for the Internet. Customer feedback used to identify customer needs and development of content and medium.

www.heritage-enviro.com

Marketing, customer service, technology and regulatory services. Customers provided with free waste minimization audit. Serves to increase market share. Development cost: \$20,000.

www.holiday-inn.com

Customer service and marketing. Online real-time reservations. Customers can view accommodations. Development cost: \$300,000.

www.va.gov/station/583.htm

Patient database. Provides real-time access to patient information and reduces labor and paper costs.

www.intellichoice.com

Automotive information and sales. Provides easy access and use of information, reduces production costs of reports. Revenue benefits: \$90,000 to \$100,000. Development cost: \$9,000 to \$10,000.

The Premier 100

Company/Organization	Industry	Company Revenue
J. B. Hunt Transport Services	Transportation	\$1.2B
Johnson & Higgins**	Insurance	\$1B
KeyCorp*	Financial Services	\$6.1B
KPMG*	Business Services	NA
Kraft Foods, Inc.	Food & Beverage	\$27B
Lands' End, Inc.	Retail	\$1B
Levi Strauss & Co.	Apparel & Textile	\$6.7B
Lutheran Church – Missouri Synod**	Nonprofit	NA
Marriott International, Inc.	Hospitality	\$9B
McDonald's Corp.	Restaurant	\$9.8B
Metropolitan Tickets, Inc. (MetroTix)	Entertainment	NA
Mobil Corp.	Oil & Gas	\$75.4B
MovieFone, Inc.	Entertainment	\$15M
National Personnel Associates Cooperative, Inc.	Business Services	\$0.6M
New York Foundation for the Arts	Nonprofit	NA
North American Company for Life & Health Insurance*	Insurance	NA
Ourisman Chevrolet and Geo, Inc.	Retail	NA
Pacific Enterprises/Southern California Gas Co.*	Utility	\$2.3B
Parker Hannifin Corp., Compumotor Division*	Industrial Automation	\$3.6B
Peapod	Retail	\$30M+
Pennsylvania State University at DuBois	Education	NA
Pep Boys – Manny, Moe & Jack**	Automotive Parts	\$1.6B
PictureVision, Inc.	Online photo developing	NA
Plymouth, Inc.	Paper Products	\$20M ³
Progressive Corp., The	Insurance	\$3B

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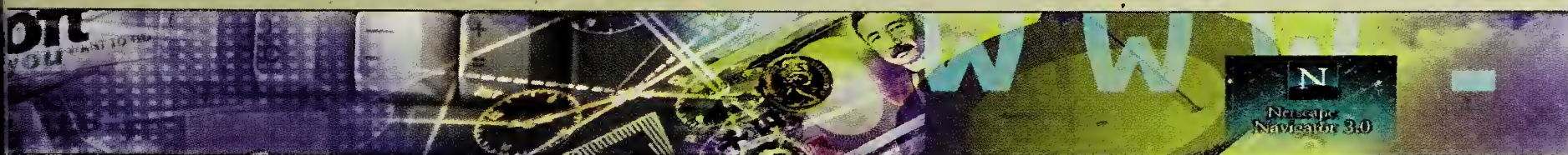
Company URL	Premier 100 Application
www.jbhunt.com	Shipment tracking service. Provides better customer service, increases load volume and reduces staffing costs. Development cost: \$30,000.
www.jh.com	Marketing and customer services. Includes insurance policy summaries, certificate requests, manuals and interactive service plans. Reduces costs and errors, streamlines workflow. Annual savings: \$1M.
www.keybank.com	KeyCorp's knowledge bank distributes job postings, information on best practices and training, marketing material and newsletters. Annual cost savings: \$1.8M. Development cost: \$300,000.
www.kpmg.com	Knowledge management and corporate communications system facilitates collaboration on projects. Productivity increased via information exchange and streamlining workflow. Cost: \$4.5M.
www.kraftfoods.com	Meal and entertainment ideas for customers. Increases consumer awareness and services. Adds value to products and provides means to obtain customer feedback.
www.landsend.com	Interactive shopping for U.S. customers. Promotes sales and customer service by providing overstock catalog and online event information, such as quilt contest winners.
www.levi.com	Marketing and advertising to increase customer service, brand equity and customer base.
www.lcms.org	Provides information on church to public; intranet provides information on investments, funds, Internet resources and reports, as well as E-mail among church branches and headquarters.
www.marriott.com	Real-time reservations improve customer service with easy access to hotel information and reduced business costs.
www.mcdonalds.com	Public access to information on franchise data, human resources, marketing information, employment opportunities and annual reports. Development cost: \$160,000.
www.mtix.com	Concert and theater information and sales. Increases sales and customer satisfaction.
www.mobil.com	Web site for public relations, electronic commerce, company information and communications. Advantage realized in ease of access to information for distributors and wholesalers.
www.movielink.com	National movie showtime guide and teleticketing service. Marketing, sales, customer service. Revenue benefit: \$1M. Development cost: \$1.5M.
www.npainc.com	Job placement service provides fast access to job orders and candidate data files. Revenue benefit: \$2.4M. Development cost: \$200,000.
www.artswire.org	Clearinghouse for arts information ranging from local event schedules to grants.
NA	Computerized insurance evaluation. Saves time and eliminates bias in evaluations. Customers access account information quickly. Development cost: \$2,000 to \$3,000.
www.ourisman.com	Car sales. Allows for home access to inventory and online credit check for the consumer.
www.pacent.com	Marketing, planning and operations. Shares business information for improved decision making, efficiency and competitiveness. Development cost: \$60,000.
www.compumotor.com	Group intranet supports manufacturing, engineering and marketing. Allows for easy document exchange and reduced paper costs. Annual cost savings: \$130,000. Development cost: \$20,000.
www.peapod.com	Online grocery shopping and delivery service. Saves customers time and provides information about products. Revenue benefit: \$30M+. Development cost: \$50,000.
www.ds.psu.edu	Information and education resources for students, including class notes, syllabi and tutoring services.
www.pepboys.com	Marketing and customer service functions. Benefits include easy access to company information, better communication and paper cost savings. Development cost: \$50,000.
www.photonet.com	Retail photo developer puts pictures on a Web site. Consumer can edit photos over Web with photo editing software and/or order prints and other items.
www.plymouth-fun.com	Marketing and communications tool directed primarily at children to increase company awareness. Feedback used to develop new product lines. Development cost: \$6,000.
www.auto-insurance.com	Insurance marketing, sales and comparative information. Competitive advantage from better access, lower prices and increased productivity. Revenue benefit: \$60,000. Development cost: \$500,000.

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The Premier 100

Company/Organization	Industry	Company Revenue
Purdue University	Education	NA
R. M. Vredenburg & Co.	Business Services	\$18M ³
Rich Products Corp.	Food & Beverage	\$1B ³
Rockwell International Corp.*	Electronics	\$13B
Rotex, Inc.*	Equipment Manufacturing	NA
Sabre Interactive	Travel	\$1.5B+
Samsung Construction Equipment America Corp.	Construction Equipment	NA
Saturn Corp.	Automotive	NA
Schnuck Markets, Inc.	Retail	\$1.8B ³
Seattle, City of	Government	NA
Sharper Image Corp.	Retail	\$204.2M
Spiegel, Inc.**	Retail	\$3.2B
Superior Electronics Group, Inc.	Electronics	\$25M
TRW, Inc.**	Automotive & Aerospace	\$10B
United Airlines, Inc.	Air Transportation	\$14.9B
United Healthcare Corp.**	Health Care	\$5.7B
United Parcel Service of America, Inc.	Transportation	NA
U. S. Postal Service	Government	NA
University of California	Education	NA
University of Texas Medical Branch at Galveston*	Health Care	NA
University of Texas — Houston Health Science Center	Education	\$378.4M
Vanderbilt University*	Education	NA
Wells Fargo & Co.	Financial Services	\$2.7B
Weyerhaeuser Co.*	Forest Products	\$11.8B
Whirlpool Corp.	Appliances	\$8.2B

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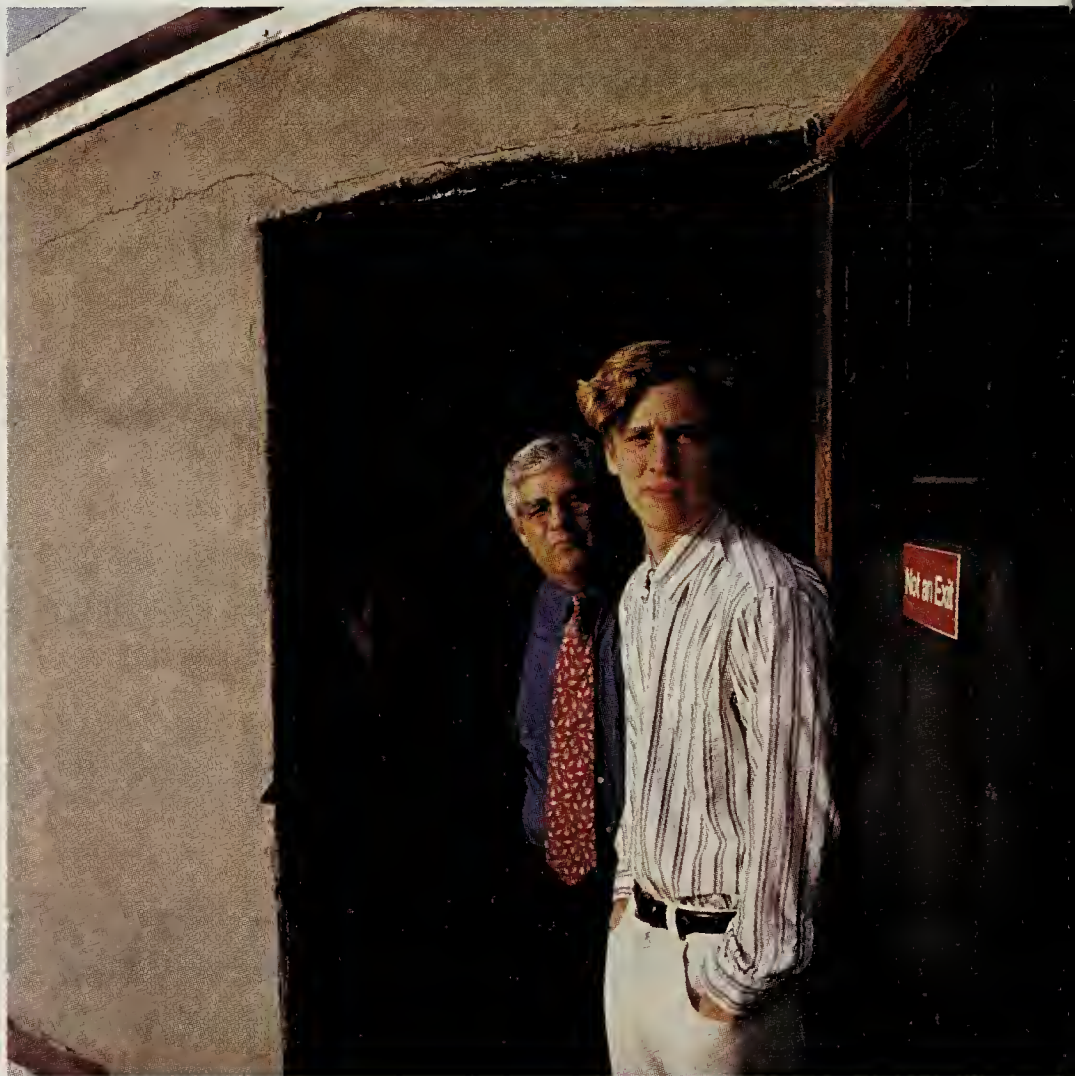
Company URL	Premier 100 Application
www.purdue.edu	Provides information to authorized users on grades, schedules, financial aid. Saves time and reduces expenses.
www.vredenburg.com	Worldwide access to engineering specs for U.S. Navy vessels. Allows immediate access to accurate information. Cost benefit: \$100,000. Development cost: less than \$100,000.
www.richs.com	Operations catalog of products informing operators on how to prepare and cook products in commercial bakeries and kitchens.
www.rockwell.com	Each area on the manufacturing floor has its own home page updated every 60 seconds. Improves process and quality. Cost savings: \$100,000s. Development cost: less than \$200,000.
NA	Engineering drawings shared facilitywide, without being lost or destroyed. Productivity increased and paper costs reduced. Development cost: \$55,000.
www.travelocity.com	Online travel and booking service gives consumers easy access to travel services. Consumers access Sabre's travel reservation system and Worldview database containing travel destination information.
www.scea.com	Offers company, product and dealer information for distributors and consumers.
www.saturncars.com	Marketing, sales, customer service. Customers can check Saturn prices/specs/options, obtain prices and apply for credit. Serves to reduce workload of retailers, increase brand awareness.
www.schnucks.com	Marketing and electronic commerce for flowers, party goods and movie tickets. Revenue benefit: \$100,000+. Development cost: \$100,000.
www.ci.seattle.wa.us	Electronic city hall. Provides citizens with means to communicate with government and more convenient and economical access to services and information. Development cost: \$250,000.
www.sharperimage.com	Electronic commerce, marketing tool. Customer service improved in time savings, access to products and increased sales. Annual cost savings: approximately \$500,000. Revenue benefit: \$1M+.
spiegel.com/spiegel	Online catalog and ordering capability. Improves sales, customer feedback and communication.
www.cheetahnet.com	Network element manager to monitor cable TV signal quality. Revenue benefit estimated at \$20M to \$30M.
www.trw.com	Job postings. Improves employee morale, helps retain and attract high-quality employees via improved communication.
www.ual.com	Provides real-time view of flight schedule and general information. Reduces costs, expands customer base, increases productivity and improves customer service.
NA	Health services staffed by nurses and masters'-level counselors offer help with physical, emotional and other health-related questions. Users send E-mail to staff and receive personalized responses.
www.ups.com	Package tracking service. Includes rate tables, drop-off locator, supply order form, quick cost calculator, time in transit estimator.
www.usps.gov	Postal information and prices. Increases customer base.
www.ucla.edu	Customer service. Easy access for students to records, financial aid and registration.
www.utmb.edu	Nursing staff policies and procedures. Reduces paperwork and medical failures. Provides immediate notice of policy changes to enhance quality of nursing services.
www.uth.tmc.edu	Complete cardiovascular physiology course accessible through the 'net. Provides customized learning environment for the individual. Replaces paper texts. Development cost: \$50,000.
www.vanderbilt.edu	Online student registration. Benefits include convenience, reduced labor costs and time savings.
wellsfargo.com	Online banking reduces branch traffic and offers convenience to consumers.
www.weyerhaeuser.com	Allows easy access to accounting data, saves time and reduces paperwork. Development cost: \$1M.
www.whirlpool.com	Customer service, public relations, sales and marketing. Benefits realized through improved consumer relations and direct purchasing of small appliances. Development cost: \$100,000.

NA = Not available. Some Premier 100 organizations do not have public Web sites and are honored for their Internet/intranet applications.

Premier Paradox

Amid the wealth and opportunity of the Internet are those who will never experience anything online. It's not the first time an underclass has been left behind. . . .

It probably won't be the last.



The Internet is a boon for business, for personal communications, for cheaper and faster access to entities worldwide — but not for everyone. Those who can't afford even last year's PC models, who don't work in jobs where they can learn computer skills, who don't even have phone service — these are the people technology forgot.

We had Wade Rowland, a Canadian author and consultant, and Mitchell Moss, director of the Taub Urban Research Center at New York University, along with research assistant Anthony Townsend, engage in an online debate on the societal impact of the Internet. Excerpts follow:

WADE ROWLAND: The question of access breaks down into access to the physical appliances — the computers, modems, Internet service providers and so on — and access to the skills and knowledge required to make use of the resources an Internet hookup offers. The 'net is like a library in the sense that the more education you bring to it, the more you can mine out of it. The basic issue is one of providing a decent, humanities-centered basic education for everyone. The technologies of today are making that more, rather than less, important.

Access to hardware is an easier issue to address. If people can't afford the equipment necessary to hook up to the 'net, society should help them out through government assistance of one form or another. In the early days of the telephone, universal access was made mandatory through legislation that, at the same time, granted network monopolies to the Bell companies. And you didn't need to have the cash to buy a telephone (which, by the way, cost about the same as a basic Internet computer does today) because Bell would lease one to you for a few cents a month. I see no reason why the same kind of leasing arrangement wouldn't work today, for the Internet. After all, the 'net is fast becoming every bit as essential a service as the telephone.

ANTHONY TOWNSEND: Where telephones were standardized early on when the industry was monopolized, the Internet and any successors will evolve in an era of unprecedented deregulation and rapid innovation. So while the U.S. government has had 60 years to leisurely, yet quite effectively, pursue

Wade Rowland is a consultant, founding partner of Blue Cat Design, and author in Port Hope, Ontario. His latest book, *Points of Convergence*, will be published in the fall. He can be reached at wrowland@eagle.ca.



Mitchell Moss (left) is director of the Taub Urban Research Center at New York University and co-author of "Leaders and Losers on the Internet," a study of host computers. He can be reached at moss@is2.nyu.edu. Anthony Townsend is a research assistant at the Taub center.

goals of universal access to telephones, it is unlikely that any government policy will be able to rewire every household every few years to replace obsolete equipment.

In the future, the issue of universal service will not be a yes or no question, but rather one of "how fast?" or "how good?" Already, since the explosion of the World Wide Web, we have seen the hype of new access technologies pass from ISDN to cable modems to asymmetric digital subscriber lines (ADSL), each becoming obsolete even before it is fully deployed. Serious efforts must be undertaken to determine what level of access is the minimum necessary at school, work or in the home for everyone.



ROWLAND: Universal access is dependent on just one thing: the collective will to make it happen. If we want it, we can have it. At the moment, it's not even on the political agenda; it needs to be put there. I can't see why it shouldn't be possible to develop the Internet equivalent of the old Western Electric black Bakelite phones that were basic, but reliable to the point of indestructibility.

Let's say an Internet appliance costs \$400 to build in quantity; it should be possible for a telco to lease it for less than \$10 a month (including 'net access) and still make a profit. Remember, AT&T is *giving away* 'net access to its customers at the moment. (Bandwidth and access issues are separate and distinct. There is no reason that access policies need have any effect on continuing development of faster network links like ISDN and ADSL. Indeed, it seems logical that greater access would speed these developments rather than slow them.) I think it's a mistake to get too caught up in the whiz-bang bells

Continued on page 66

"Universal access is dependent on just one thing: the collective will to make it happen. At the moment, it's not even on the political agenda; it needs to be put there."



and whistles like Java and VRML and 3-D and so on. If we want to watch streamed video, we have our television sets for that. The fact that the technology is evolving should not deter us from insisting on universal access. After all, one doesn't need a \$2,000 surround-sound tuner with sub-woofer and ceramic tweeters to enjoy the benefits of radio.

MITCHELL MOSS: Even telephone access isn't ubiquitous, though. According to the Census Bureau, more than 6% of all U.S. households don't have a telephone — 5.6 million households affecting approximately 15 million people. These households are concentrated in large cities and con-

help citizens get access to the electronic information services by establishing a "Free-Net" system that is operated by local community members and groups. Surprisingly, New York City, alone among major U.S. cities, does not have a Free-Net. In Berkeley, Calif., workstations accessible to the public have been placed in Laundromats and at gathering places for the homeless.

California also has two of the three regions with the most Internet hosts in the U.S. — Silicon Valley is first, the Route 128 high-tech corridor in Massachusetts is second and Los Angeles County is third, according to our research. Since new telecommuni-

are not central Web servers but LAN desktop machines and, to a lesser extent, secondary servers for mail and news, while the measure may misrepresent persons in a situation like yours, it shows overall trends.

Another, perhaps more informative, measure of the use of the Internet among cities and regions is to map concentrations of registered domains. In fact, Imperative (www.internet.org) has been doing this recently, and its site has a list of the top 100 U.S. cities by number of domains.

MOSS: Of the approximately 100,000 domains classified by Imperative, more than one-third, 41%, are used by service industries; 17% are controlled by manufacturing firms and 17% by retail trade firms. Wholesale trade accounts for 9%, finance, insurance, and real estate for 8%, and transportation, communications, electric gas and sanitary account for 5%. Of the remaining 3%, public administration is less than 1%.

Still, it is shocking how quickly federal agencies have switched from paper to electronic forms of distribution. The Census Bureau has announced that some reports will not be printed, but will only be available electronically. Other federal agencies, such as the U.S. Department of Housing and Urban Development, are using the Internet to distribute information about grants, loans and applying for federal aid. What will this mean to nonprofit organizations and civic groups that lack easy access to the Internet?

ROWLAND: The massive migration of government services to the Web (and it's happening all over the world) is one more reason why government has to get involved in making Web access affordable and universal. The 'net in all its many facets, from home banking and shopping to library access and research resources to mail and newsgroups and distance education, is getting very close to the stage of being an essential service, and it is in everybody's interest to see that access is available regardless of income or location.

"More than 6% of all U.S. households don't have a telephone — 5.6 million households affecting approximately 15 million people ... predominantly young, minority and poorly educated people."



sist predominantly of young, minority and poorly educated people. No telephone service limits their participation in many activities, much less direct access to the Internet.

ROWLAND: In Canada, we have government programs to assist schools and libraries to get on the 'net, to provide free public access points.

MOSS: In the Bedford-Stuyvesant section of Brooklyn, N.Y., a nonprofit organization, the Chocolate Chips Electronic Office, operates a computer center designed to bring "the world of information technology to Brooklyn's African-American community." Another nonprofit, the National Public TeleComputing Network, has established community computer systems in cities across the country to

cations policies rely on market criteria to guide investment in infrastructure, those areas with dense concentrations of users will be the first to get the benefits.

ROWLAND: I don't think that the number of Internet hosts in a particular geographic location has much to do with anything. My own Internet business uses a host in Atlanta, because it offered better value than the hosts available closer to home in Toronto. I could just as easily use a host in London or Vancouver.

TOWNSEND: Given the huge variety of private, public and military networks which make up the Internet, the geographic location of hosts is really the only measure we have to work with. Because a large number of hosts

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<http://www.informix.com>

Netscape 3, 50
<http://www.netscape.com>

Oracle Corp. 4, 39
<http://www.oracle.com>

SAP America 21-23, 42-43
<http://www.sap.com>

Sun Microsystems. C2, 6-7, 31, C4
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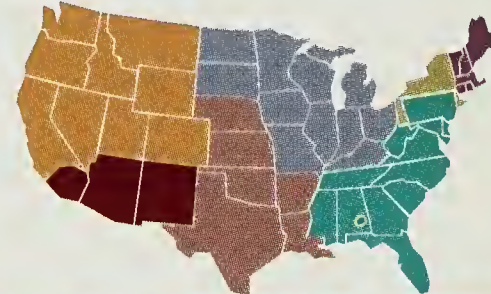
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Editorial Index

Premier 100 and other organizations cited in our issue. Numbers indicate page on which story begins.

A & M Records	56	Federal Express Corp.	36, 56	Pacific Northwest National Laboratory	27
Advanced Marine Enterprises, Inc.	56	First Albany Corp.	14	Parker Hannifin Corp., Compumotor Div.	24, 56
Aetna, Inc.	48	First Union Corp.	56	Peapod	14, 18, 56
Alamo Rent A Car, Inc.	56	Florida Power & Light Co.	56	Pennsylvania State University at DuBois	56
Alaska Airlines, Inc.	56	Gas Research Institute	56	Pep Boys – Manny, Moe & Jack	52, 56
Allegany County (Md.) Human Resources Development Commission	56	Geisinger Health System	56	PictureVision, Inc.	30, 56
Aluminum Company of America	56	GenCorp	56	Plymouth, Inc.	56
Amazon.com	8, 30, 56	Goodwill Industries International, Inc.	45	Progressive Corp.	48, 56
Amoco Corp.	51	Could Paper Corp.	56	Proxicom, Inc.	48
AMP, Inc.	56	Great American Teddy Bear Co., The	30	Purdue University	56
APL Ltd.	56	Harris Corp.	56	R. M. Vredenburg & Co.	56
Armstrong World Industries	56	Hastings Entertainment, Inc.	56	Rich Products Corp.	56
Arthur D. Little, Inc.	14, 18, 56	Hazelden Foundation	41, 56	Rockwell International Corp.	56
Ashland, Inc.	56	HBO & Co.	56	Rotex, Inc.	56
Auer Precision Co.	56	Heritage Environmental Services	56	Sabre Interactive	56
BankAmerica Corp.	14, 56	Holiday Inns, Inc.	51, 56	Samsung Construction Equipment America Corp.	56
Barnett Banks, Inc.	56	Indianapolis VA Medical Center	56	Saturn Corp.	56
Battelle Pacific Northwest National Laboratory	56	IntelliChoice, Inc.	56	Schnuck Markets, Inc.	56
Bechtel Corp.	14, 56	J.B. Hunt Transport Services.	24, 56	Ralston Purina Co.	14
Beth Israel Deaconess Medical Center, Dept. of Nuclear Medicine	56	JC Penney Co.	24	Seattle, City of	40, 56
Black & Veatch	25, 51, 56	Jewel Food Stores	14	Senior Campus Living	44
Booz, Allen & Hamilton, Inc.	56	Johnson & Higgins	56	Sharper Image Corp., The	30, 56
Bristol-Myers Squibb Co.	14	KeyCorp	24, 56	Solution Zone, The	30
Caliber System, Inc.	56	KPMG	56	Southern California Gas Co.	24
Cambridge, City of	40, 56	Kraft Foods, Inc.	14, 56	Spiegel, Inc.	56
Carnegie Mellon University	46	Lands' End, Inc.	56	Superior Electronics Group, Inc.	56
C. H. Robinson Co.	56	Levi Strauss & Co.	14, 56	TRW, Inc.	56
CH2M Hill, Inc.	56	L.L. Bean	18	United Airlines, Inc.	56
Charles Schwab Corp.	56	Loyola Marymount University	51	United Healthcare Corp.	56
Christianity Today, Inc.	46	Lutheran Church – Missouri Synod	46, 56	United Parcel Service of America, Inc.	36, 56
City of Austin Electric Utility Department	56	Marriott International, Inc.	48, 56	U.S. Postal Service	14, 18, 56
Columbia/HCA Healthcare Corp.	36, 56	McDonald's Corp.	48, 56	University of California	52, 56
Consolidated Grain and Barge Co.	47, 56	Metropolitan Tickets, Inc. (MetroTix)	56	University of Texas Medical Branch at Galveston	56
Coopers & Lybrand LLP	56	Mobil Corp.	56	University of Texas – Houston Health Science Center	56
CUC International, Inc.	30, 56	MovieFone, Inc.	56	Utne Reader	33
DHL Airways, Inc.	36, 56	NASA	45	Vanderbilt University	56
Dreyfus Corp., The	56	Nation's Restaurant News	36	Wells Fargo & Co.	51, 56
Encyclopaedia Britannica, Inc.	56	National Personnel Associates Co-op	51, 56	Weyerhaeuser Co.	56
Environmental Protection Agency	56	New York Foundation for the Arts	46, 56	Whirlpool Corp.	51, 56
Equitable Cos., The	56	North American Co. for Life & Health Insurance	56	Wolf Camera and Video, Inc.	30
		Ourisman Chevrolet and Geo, Inc.	56		
		Pacific Enterprises	56		

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